PAPER TRADE JOURNAL

VOL. 123, NO. 20 NOVEMBER 14, 1946

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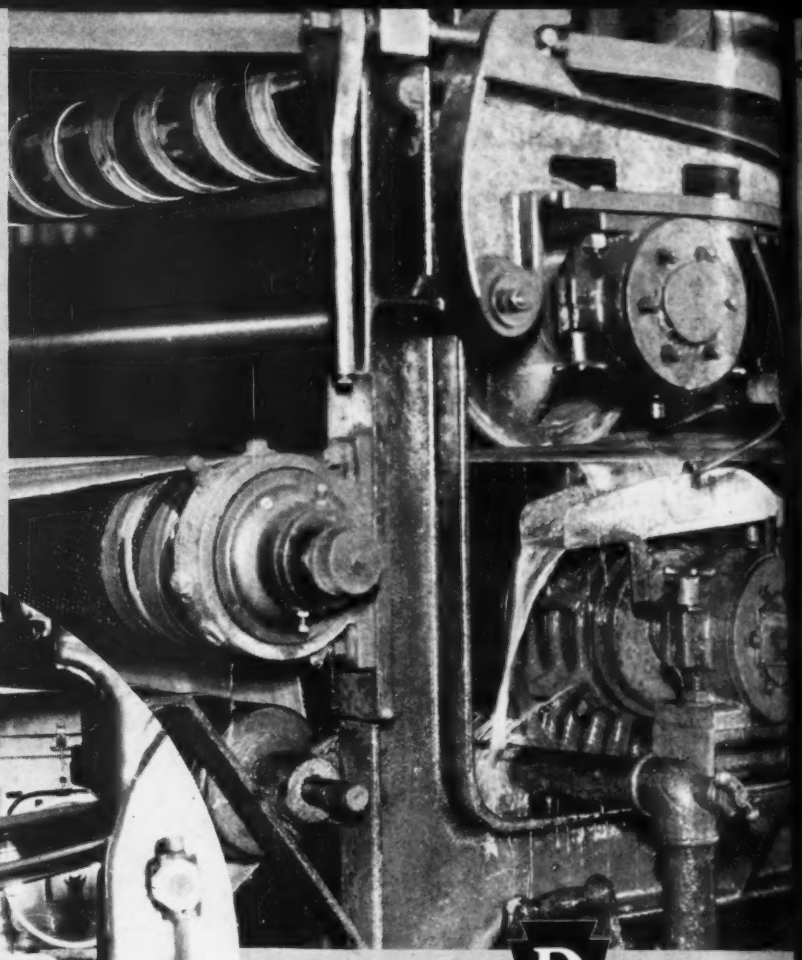
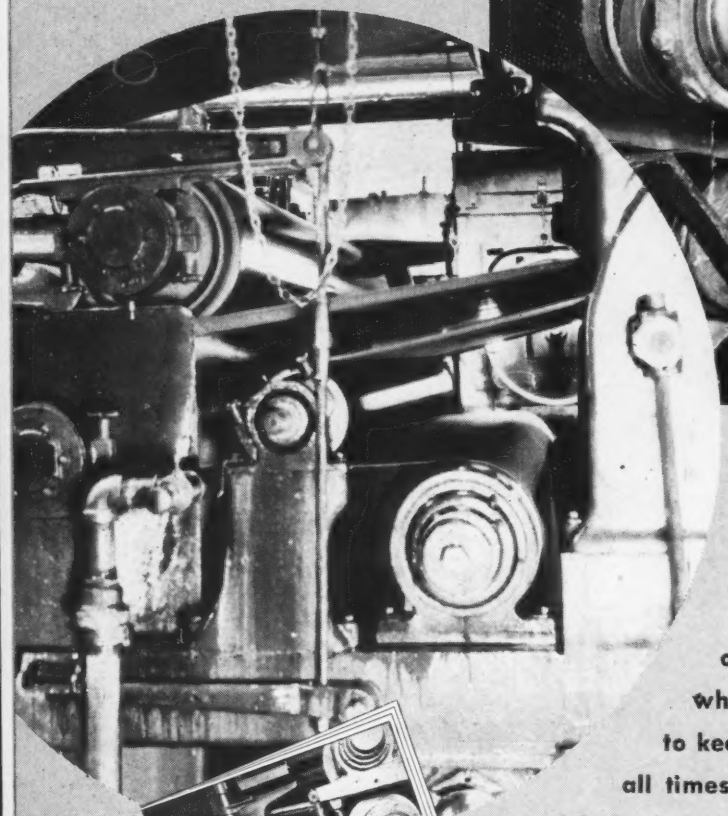
Half Billion Bags is St. Regis Goal
Buyers Find Prospect is Dark

Continuous Full Width Cleaning

of Press and Pick-up Felts





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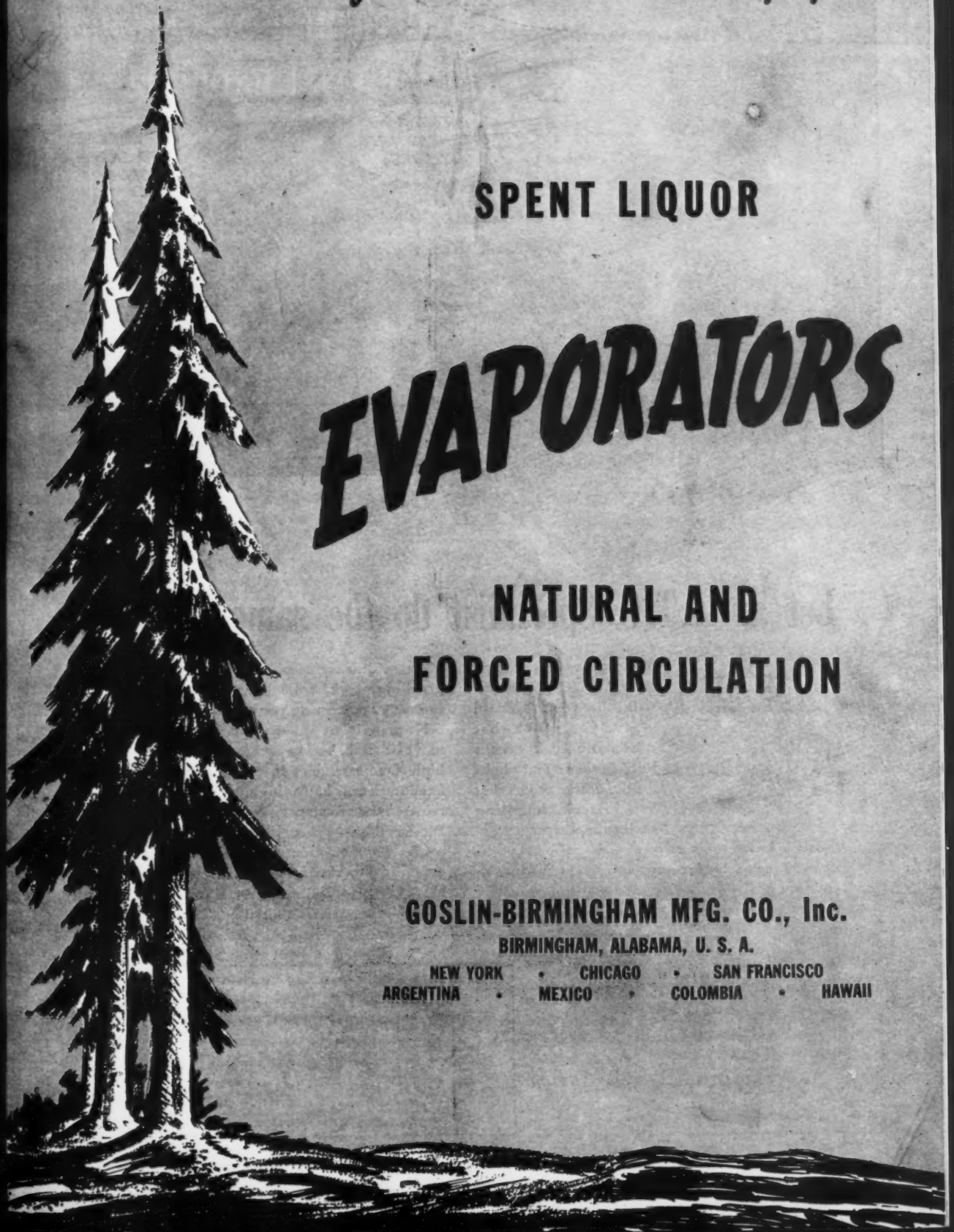

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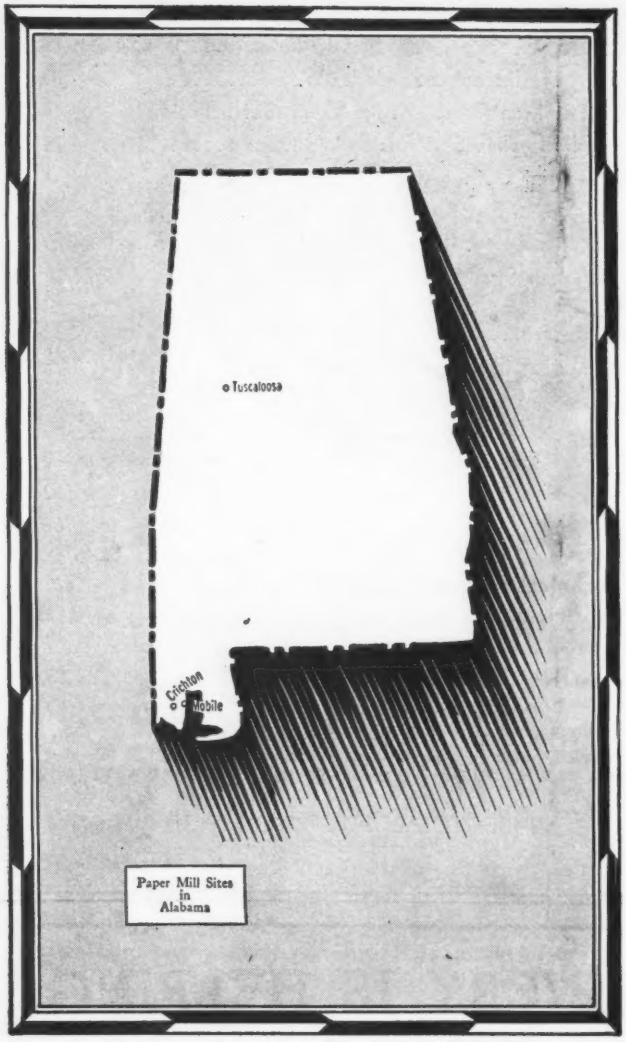

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Alabama is a newcomer among papermaking States. Taking advantage of the native raw materials most, if not all, of the pulp requirements are locally met in self-contained mills.

With one exception the several companies have built large scale mills. One is credited with a daily capacity of 450,000 pounds of sulphate pulp, another with a capacity of 860,000 pounds daily, a third equipped with special machinery for manufacturing wood fibre wallboard, is rated at 200,000 pounds daily of this product, and a fourth plant appears to have a capacity for making 400,000 pounds of kraft paper in 24 hours.

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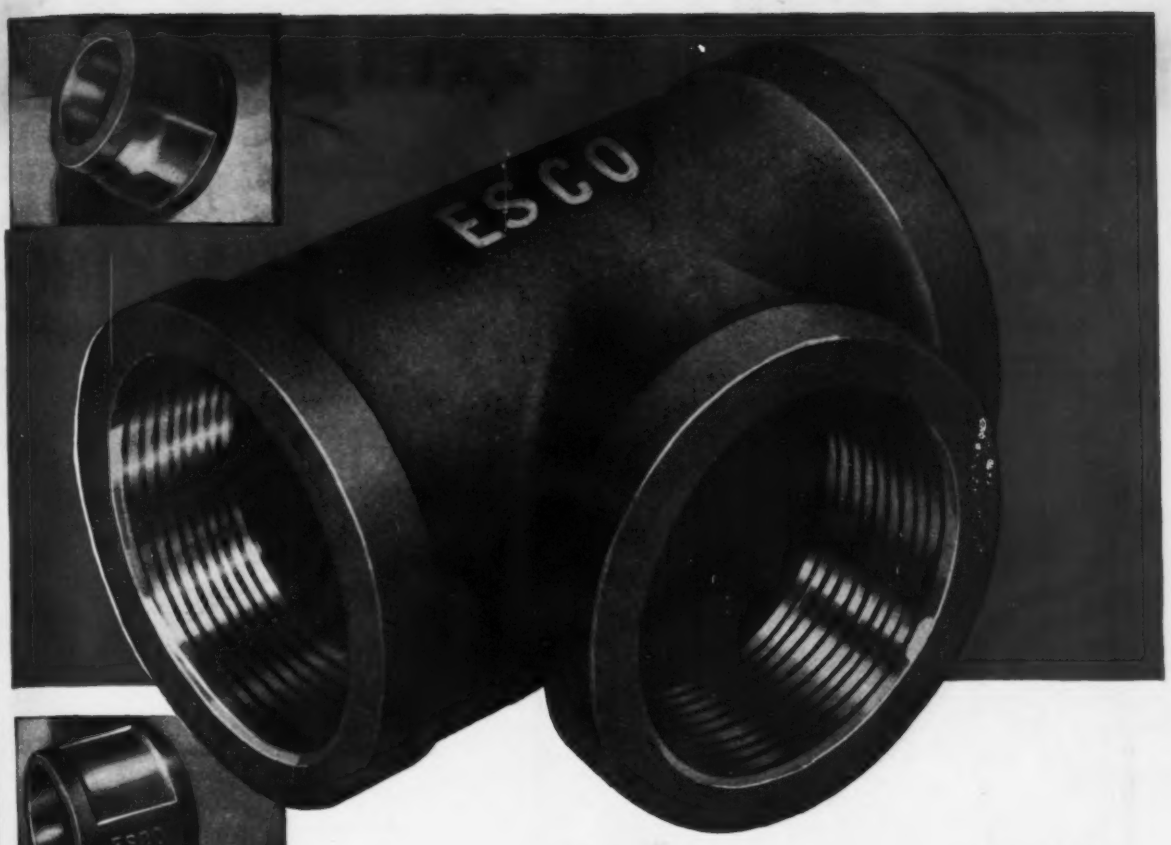

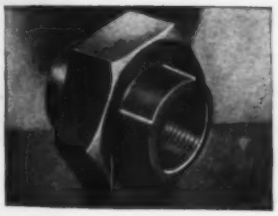

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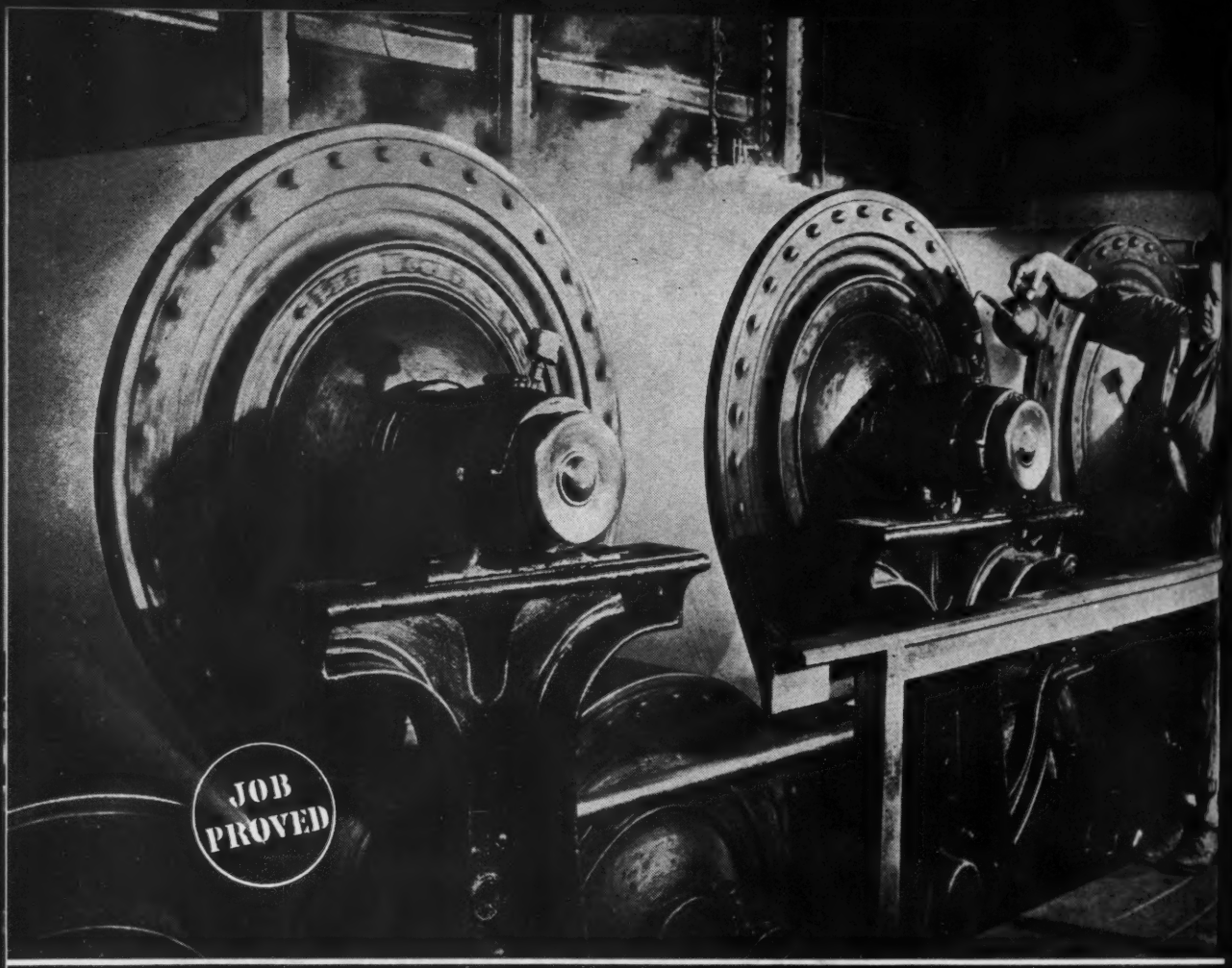

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PAPER TRADE JOURNAL
Vol. 123, No. 20 November 14, 1946
Title Reg. U. S. Pat. Off.

Bushworkers Accept Ontario Settlement

TORONTO — Striking bushworkers in the Timmins-Cochrane districts of Northern Ontario have voted 99 percent in favor of accepting settlement terms arrived at in discussions at Queen's Park between the union and Ontario timber operators. The result was made public by Bruce Magnuson, chairman of the joint committee of the Lumber and Sawmill Workers' Union (A.F.L.), who conducted the 19-day strike. Voting on the proposals had not at that time been completed in the Port Arthur districts, but Mr. Magnuson stated the results there were expected to be similar to those at Timmins and Cochrane. Close to 10,000 workers were involved, it is claimed. They demanded a minimum wage per day of $5, union recognition and elimination of double decker beds in lumber camps, to be supplanted by single beds. The settlement proposals include the three main demands.

In spite of some labor difficulties in the bush in Ontario, the new season's cut of pulpwood stands somewhat ahead of corresponding figures a year ago in the Eastern section. This means that operations in the other provinces have more than offset the drop in the cut in Ontario so far. With the Ontario strike settled, it may be expected that normal operations will be resumed. On the basis of the heavy cut of the previous season and favorable water conditions affecting the drives to the mills, the pulp and paper mills have been able to operate at practically capacity during the second half of 1946.

Truman Decontrols Sweep All Limits from Pulp and Paper

NEW YORK — President Truman on Saturday night cancelled OPA price controls on products and materials of the paper industry. Spokesmen for the paper industry this week declared that decontrol may be expected to bring about a temporary rise in the over-all price picture of the industry; but representatives from manufacturers down through wholesalers and retailers maintain that, in the long run, a "hold the line" policy will prove beneficial to producers and consumers alike. Reports seem to indicate that even under competitive bidding such widely sought-after paper items as newsprint, kraft papers, book and tissue papers will not skyrocket as they did after the close of the first World War.

More sober counsel urged that price boosts be restricted to the difference occasioned by increased costs. All interests engaged in the manufacture of paper products also were being asked to take into consideration effect of inflated prices on the nation's economy.

In a bulletin to its membership this week the American Paper and Pulp Association declared that the responsibility is placed upon the individual units within the industry to determine policies that will stand the test of time. It is to be hoped that in establishing these policies appropriate consideration will be given to their effect on the national economy and on the industry.

Quoting from a letter, dated October 30th, which was transmitted to the Office of Price Administration by the Overall OPA Advisory Committee for Pulp, Paper and Paper Products, E. W. Tinker, executive secretary, showed the committee sentiment:

"We do not say that, in an industry comprising over 700 mills, large, medium sized and small, a producer would never be tempted to and would not take advantage of a buyer's importunities and sell a particular order

(Continued on page 22)

CPA Sanctions Addition At Covington Mill

COVINGTON, Va.—The West Virginia Pulp & Paper Company has been authorized by the Civilan Production Administration to construct an addition to its present building at Covington, to house a machine for the manufacture of fiber board from wood pulp. Company officials said the addition will increase the production of the present plant by 50 percent. The CPA said the project was approved as necessary to increase production of critical materials.

Sutlive Heads Savannah Kiwanis

SAVANNAH, Ga.—W. Kirk Sutlive, public relations manager for the Union Bag & Paper Corporation, has been elected president of the Savannah Kiwanis Club.

PACIFIC MILLS' FIRST POSTWAR DIRECT OVERSEAS SHIPMENT
The Swedish motor vessel "Barranduna" at Ocean Falls, B. C., where it loaded a cargo of newsprint for Australia.

Golden Fleece Mill Changes Its Power

BANCROFT, Mass. — Golden Fleece Company, Inc., formerly the Federated Mills, has completed an installation of new machine drives, and changed over from steam power to electricity. These changes represent the culmination in a year of extensive improvements. The company, during 1946, under the direction of Robert Englander, production manager, has completely renewed both the interior and exterior of all its buildings, constructed a new dam across the Westfield River for its water supply, and as well has replaced all depreciated equipment.

Without the addition of any new paper making machinery, production has been increased approximately twenty percent and power costs have been materially reduced. The new drives were engineered and manufactured by the Syco Manufacturing Corporation of Syracuse, New York and the electrification was handled by the Springfield Electrical Company in conjunction with Westinghouse Electric.

The two cylinder paper machines are each driven with two Syco drives. The first drive powers the press and the dryer sections while the second drive powers the calenders and winder. The drives for each machine are motivated by a torque shaft direct connected to a 75-hp motor, and auxiliary units are powered off this same torque shaft by V-Belt drives.

The electrification program consisted of the erection of a 750 KVA Transformer bank, the installation of a six feeder main switchboard and the individual electrification of the entire paper mill.

F. V. Munn, Mill Superintendent, stated that the initial increase in speeds by no means represents the limit of latent productivity on the paper machines and he expects to be able to further increase both speed and quality of production during the coming year with only minor changes to the equipment.

The Golden Fleece Company has been in the facial tissue field for over 10 years, however, it has only been within the past year that they have operated under their present name. They have always manufactured the highest quality product available in their market utilizing Solka pulp exclusively for their raw material.

In view of the high standard of quality that is demanded of their production, the need for increased tonnage has been cautiously considered and the capital program just completed has thoroughly satisfied all quality requirements.

Col. Armstrong Receives Medal

CHICAGO—Col. Paul G. Armstrong, executive of Parker, Schmidt & Tucker, well known Chicago paper jobbers, recently received the Medal of Merit at a testimonial dinner attended by city, state and Army officials at the Stevens Hotel. Colonel Armstrong, director of Selective Service in Illinois since 1940, received the medal, the highest honor the army bestows on a civilian, from Major General Lewis B. Hershey, national Selective Service director, as representative of the President of the United States.

Labor Stoppage Halts Work At Ancram Mills

ANCRAM, N. Y. — Labor trouble arose last week at the Ancram Paper Mills, where a wage increase is being sought. The company produces cigarette and carbon papers, furnishing employment to about 125 persons. It was stated that operations had been halted when the company failed to reach an agreement with labor leaders.

The employes were recently affiliated with the International Brotherhood of Papermakers which is said to be seeking an increase in wages and other benefits. Wage increases granted last December and April amounted to about eighteen percent. A prominent labor organizer declared that his organization won a National Labor Relations Board election at the plant on Aug. 1. He said that the organization first sought an increase of ten cents an hour and other benefits but later dropped all demands except for a pay increase. The wage demand was later reduced from ten to five cents in the negotiations. The hourly wage rate is 82 cents an hour for males and 65 cents for females. An official of the International Brotherhood of Papermakers claims that any effort by the firm to shift operations to a branch at Lee, Mass., would be vigorously opposed.

Four Wisconsin Mills Raise Pay Rates

NEENAH, Wis.—Local unions of the International Brotherhood of Papermakers have accepted increases of five cents an hour for men and six cents for women employes of four paper mills, according to Emil Noren, regional director of the papermakers. The mills involved are the Fox River Paper Corporation, Appleton; Whiting-Plover Paper Company, Stevens Point; Neenah Paper Company, Neenah, and Gilbert Paper Company, Menasha.

The increase brings the base rate to 83 cents per hour for men and 71 cents per hour for women. Raises at the mills since V-J day now total 18 cents per hour for men and 19 cents for women, Mr. Noren said.

There was no reduction in hours, the employes continuing on a 48-hour week with 52 hours pay. Paul Phillip, Albany, N. Y., vice-president of the papermakers, and Mr. Noren attended the negotiation meetings with the companies involved.

LongLac Project Gets Under Way

NEENAH, Wis. — Carving a Kimberly-Clark corporation subsidiary plant as well as a town out of the forests along the northern shore of Lake Superior in Canada is the corporation's latest project. The LongLac Pulp and Paper company of Terrace Bay is expected to be completed in part by 1948. A clearing for the mill has been made already and the headquarters for engineers, office workers and laborers is centered in a temporary construction plant which includes dining facilities. The new Canadian-Pacific railroad spur curves below the camp and angles out toward the mill site. Work on the camp itself is continuing since it must be enlarged to house about 1,500 by next summer, its present capacity being slightly over 300.

The Ontario Hydro-Electric commission will construct a dam across the Aguasabon river and cause it to flood about 3,000 acres of present woodland to supply power for the new mill and village.

The town of Terrace Bay, about one mile south of the mill, is being planned and built on land terraced by nature.

The preliminary plan for the townsite shows a basic plan for clearing and grading all town streets and laying out of all town lots by the end of this year. Churches, police and fire stations, public library, community center, city hall, hotel, shops and theater, a hospital, swimming pool, sports stadium, schools, railways station and subway already are plotted.

This year's basic plan for the Longlac Pulp and Paper company of Terrace Bay calls for complete clearance of the mill site, erection of pulp storage building and laying of the boiler house foundations.

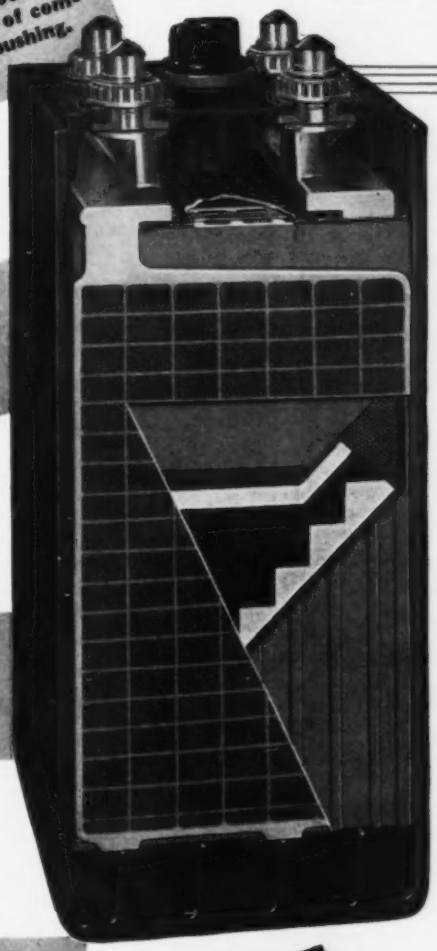
Wallpaper Plant Staffs Return to Their Work

JOLIET, Ill.—Wallpaper plant workers, on strike for approximately twenty days, nearly 2000 of them in this area, were back at work last week following a settlement of the strike. The strikers voted to accept a 16½ cent an hour pay raise. They originally had demanded a 36 cent an hour increase, but reduced it to 23 cents in negotiations.

The pay raise is retroactive to September 1. The strike had stopped one third of the nation's wallpaper production and had likewise held up some $5,000,000 of plant expansion and new construction. General strikes in Joliet and Aurora had been threatened in support of the machinists and there was a possibility that the strike might spread through the entire wallpaper industry. The new contract cannot be re-opened until October 31, 1947.

Setting New Records

Gould Kathanode Batteries have a service life 80% longer than flat plate batteries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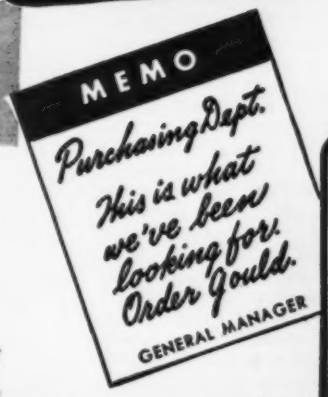

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Timber Man Complains He Can't Get Logs

TORONTO — Northern Ontario pulp and paper companies were accused this week at Port Arthur before the royal commission enquiring into forest resources and their utilization, of strangling the lumber business through their holdings of forest areas. At the first sitting of the royal commission, headed by Maj.-Gen. Howard Kennedy, at Sault Ste. Marie, October 28, no briefs were presented and only four spectators turned up at the country courthouse. The situation was different, however, when the commission moved on to Port Arthur.

A. E. Johnson, president of the Pidgeon Timber Co., Ltd., and of the Great Lakes Lumber and Shipping Co., presented a six-point brief which seemed to be quite inoffensive and tolerant, but during the question and answer period conducted by the chairman and commission counsel, Donald Guthrie, Mr. Johnson accused the pulp and paper companies of trying to strangle the lumber companies in the region.

"The pulp and paper mills have had complete control of timber areas to the exclusion of operators whose business it is to produce railway ties, lumber and sawlogs, which, in turn, supply industrial and hydro requirements. They have on their limits the type of sawlogs we need and they won't let us in on it. They figure they own the sun, and the wind and the rain. This cartel which has been formed by the pulp and paper companies is strangling us in the sawlog business. They are preventing industries from thriving which are important to the economy of Canada," Mr. Johnson said.

"There was a government directive," he continued, "which required pulp and paper companies to cut sawlogs for us, but the pulp and paper companies cut pulpwood logs into 16-foot sawlog lengths and cut sawlogs into 4-foot pulpwood lengths. The pulpwood logs were no good to us and they ruined the sawlogs for us."

"I have been trying to negotiate with the pulp and paper companies for twenty years," Mr. Johnson continued, "without results and I'm not alone. There are 1,500 portable sawmills in this province which are being held off pulp and paper limits. Right here in this Thunder Bay area, the pulp and paper companies control all the available limits, and we can't get in. I am in this thing right now and from here in for a showdown fight with the pulp and paper companies."

F. G. Gardiner, representing the Ontario members of the Canadian Pulp and Paper Association, clashed frequently with Mr. Johnson.

Reversion of crown lands to government control and the complete management of rich forest tracts by the government was advocated by F. O. Robinson, Co-Operative Commonwealth Federation member of the provincial parliament at the final hearing of the two-day sessions of the royal commission on forest resources at Port Arthur, Ont., last week. Under the plan advocated by the C.C.F. member, the government would have complete control over, and management of, crown lands. Independent operators would still cut timber, but it would be sold to the government at a fixed price and marketed by a forest resources commission which would be the government's executive body.

All phases of forestry would benefit, Mr. Robinson said, fire fighting methods would be widened and improved, roads through timber tracts would be integrated with existing highways and measures against insect pests could be integrated and widened. Forestry schools could be set up, he suggested. Soil erosion could be studied and parks could be laid out to benefit the tourist industry. Research facilities could also be set up and the conservation and utilization of forest resources would continue along a planned course and watersheds could be maintained in conjunction with the Ontario Hydro-Electric Power Commission.

An integral part of the Robinson plan would be the establishment of forest communities which would be laid out under government supervision and in localities suitable for both forestry and agriculture.

Mayor Charles Cox, of Port Arthur, maintained that the exporting of raw wood to U. S. mills entailed great economic loss to Canada. "Over one-half of the pulpwood exported from Canada comes from Ontario," Mr. Cox declared, "and one-third of it comes from this Thunder Bay region."

At the close of the first day's sittings of the commission at Kenora no prepared briefs had been presented, but some representations had been made orally. William Docker, C.C.F. member of the Ontario legislature, declared that timber limits in the Red Lake district were not being made available for cutting. "There is timber there," he said, "but it is not being put up for competitive bidding." Keith Acheson, regional forester, said: "There are two saw-log mills in that vicinity, operating on contracts to supply timber to the mines. Both companies have large investments in that area. If we were to open up that land for competitive bidding, neither of these companies would be able to bid against the large pulp and paper mills and they would lose their total investment, which must amount to around $20,000 each. We thought it would be fairer to those companies to allow them to operate under somewhat protected conditions for a time, rather than add the uncertainties of supply to their other occupational hazards. We have had many applications for timber limits in that Red Lake area. We decided to leave them all for consideration until next spring."

B.C. Forest Service Develops Nursery

VANCOUVER, B. C. — Tenders have been invited by the B. C. Chief Forester for construction of a workshop and implement building for the British Columbia Forest Service at Duncan, which will mark another step in the development of the Island's second tree-growing center.

Erection of several buildings at the Duncan nursery of the B. C. Forest Service was planned during the summer, but scarcity of materials necessitated abandonment of these plans. However, the workshop and implement building are to be built, and tenders will be received up to noon November 6. Plans and specifications are obtainable from forest rangers at Duncan or Nanaimo, the Forest Experimental Station at Duncan, or the Chief Forester.

One corner of the 23-acre field at Duncan, where 6,000,000 seedlings planted last spring are growing, is being hollowed out to contain a pond which will be used for watering purposes in the spring and summer.

Work at the tree nursery this fall and winter consists of clearing new land, laying in tile for drainage and spreading sawdust on the seedbeds as a protection against frost.

The Duncan nursery complements the work of the previously established tree nursery of the B. C. Forest Service of Campbell River. The trees grown at Duncan will be used to reforest logged-off areas in the Cowichan district and on other parts of the Island.

Hudson-Pulp Names Lund Production Vice-President

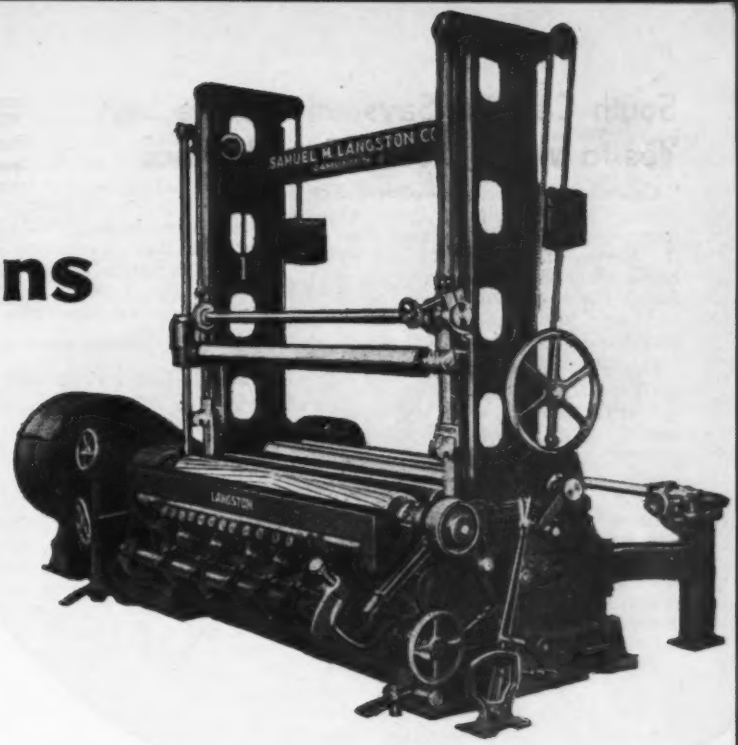
NEW YORK — Anton M. Lund has been named vice-president in charge of production by the Hudson Pulp & Paper Company. He will supervise production of the company's four mills, located at Bellows Falls, Vt., Lansdowne, Pa., Palatka, Fla., and Augusta, Me. He will make his headquarters in Augusta.

Mr. Lund has been connected with the pulp and paper industry for his entire career. Born in Norway, he was graduated from the University of Trondheim and began his career in the mills there. He came to this country in 1925 and went to work for the Saranac Pulp & Paper Company as mill superintendent.

In 1932 Mr. Lund joined the Hudson family as mill superintendent of the Lansdowne plant. From 1933 to 1935 he was in charge of production of both the Lansdowne and Bellows Falls plants, and following that was made general manager of the Augusta plant.

Mr. Lund is an active member of the Technical Association of the Pulp & Paper Industry. He is married and has three boys.

Successful Combinations



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South Carolina Says Yes to Westvaco

CHARLESTON, S. C.—An offer by the West Virginia Pulp & Paper Company to sublease the greater part of the North Charleston dock and warehouse property to the South Carolina State Ports Authority for development as a tidewater terminal has been accepted by the authority.

David L. Luke, Jr., president of the paper company, expressed the desire of the company's officials to facilitate the prompt carrying out of the authority's plans as a benefit to the Charleston area and the state as a whole.

As noted, the property in question was turned over to the city by the government in 1936, and leased that year to the paper company for 50 years. It was taken by the war department in 1941 for the duration of the national emergency.

A form of sub-lease to the authority by the paper company was submitted by Mr. Luke's letter. The authority was asked to signify its acceptance as promptly as possible, "in order that a definite agreement may be placed before the city council for its consent."

A spokesman said the company's offer is the result of co-operative efforts made over the last year by officials of the State ports authority, the paper company, the city council and the United States government to effect a prompt return of the property as soon as it no longer is needed for national defense.

Mr. Luke's letter stated that an agreement between the city council, the government and the West Virginia Pulp & Paper Company, providing for the early return of the property, is being submitted for the approval of the under-secretary of war and the city council.

The letter also points out that the government would not agree to the release of the property until satisfactory arrangements had been made for the purchase of certain equipment and that the company has assumed the responsibility for their purchase not for its own needs but only to expedite the return of the property in anticipation of its use by the Authority.

According to Mr. Luke, West Virginia Pulp & Paper Company will continue to use the two southernmost warehouses, together with the four related headhouse sections and dock area adjacent to its pulp and paper mill. In accordance with long range plans formulated by the company prior to the outbreak of war, in connection with an $8,000,000 expansion program and necessarily suspended at that time, the two warehouses are now to be equipped to function as a necessary part of the plant's manufacturing operations.

The Charleston dock and warehouse properties, consisting of about 500 acres, were turned over to the city in 1936 by the government. The West Virginia Pulp & Paper Company leased part of the property at the city's invitation to construct a pulp and paper mill in line with the city's desire to encourage new industries to locate in the Charleston area. The company's 50-year lease, running to June 29, 1986, provides for an option to renew for an additional 50 years.

Kimberly-Clark Prepares to Celebrate 75th Anniversary

NEENAH, Wis.—Kimberly-Clark Corporation is planning to observe its diamond anniversary within two months. It will be 75 years ago come next year, that J. A. Kimberly, C. B. Clark, F. S. Shattuck and Havilah Babcock formed a partnership to engage in the paper manufacturing business under the name of Kimberly-Clark and Company.

Kimberly and Babcock were partners in a general store in 1872 and later owned a flour mill; Clark was a partner in a retail hardware business, and Shattuck had developed a wholesale business selling to small shopkeepers. The four had saved or borrowed $30,000, which was enough to enable them to start the new business.

Company operations spread into New York state and Canada in 1921, and the progress of the corporation has been rapid until today it has plants at Niagara Falls, N. Y.; Niagara, Wis.; Appleton, Neenah, Kimberly, Wis.; Memphis, Tenn., and Kapaskusing, Canada, and it is building a new plant, the Longlac mill at Terrace Bay, Ontario.

Brotherhood Buys Building in Albany

ALBANY—The International Brotherhood of Papermakers has completed negotiations for the purchase of the Stratton Building, Albany, at a price in the neighborhood of $300,000. The organization has maintained its headquarters in Albany since 1911 and now has an enrollment of about 55,000 members in the United States, Canada and Newfoundland. Matthew Burns, Albany, has been president since 1921 and Paul L. Phillip, of Voorheesville, is first vice-president. The organization plans to occupy a section of the building about May 1.

Marathon Mechanics Organize For Bargaining Purposes

MENASHA, Wis. — Organization of International Association of Machinists Lodge No. 1855 among workers in the machine division of Marathon Corporation was announced last week by A. C. Baksic, international representative. The group recently was named bargaining representative for the Marathon machinists.

Connecticut River Program Studied

HOLYOKE, Mass. — The Connecticut River, although considered by the War Department to be navigable as far as Barton, Vt., has been neglected from the standpoint of communications, Massachusetts State Senator Ralph Lerche of Northampton, chairman of a Massachusetts legislative commission investigating river development possibilities, declared recently in Hartford, Conn. Senator Lerche, accompanied by commission member, Rep. Thomas T. Gray, also of Springfield, Anthony Pimentel, planning engineer for Chicopee, and Wilfred Paul, court officer of the Massachusetts General Court, came to Hartford after completing the first leg of an inspection trip up the river from Essex.

The commission, Senator Lerche said, was created early this year through legislation introduced by Gray, who is a state representative, and it has conducted several hearings in Springfield, Holyoke, and Chicopee on the subject of river development. "Great interest in such a project was shown by representatives of heavy industry, especially around Springfield," he added.

Pointing out that, before the use of railroads, the Connecticut River was the "main artery" of commerce in the Connecticut Valley, Lerche voiced the opinion that even today heavy bulk products could be shipped by water at a great saving to consumers of these products.

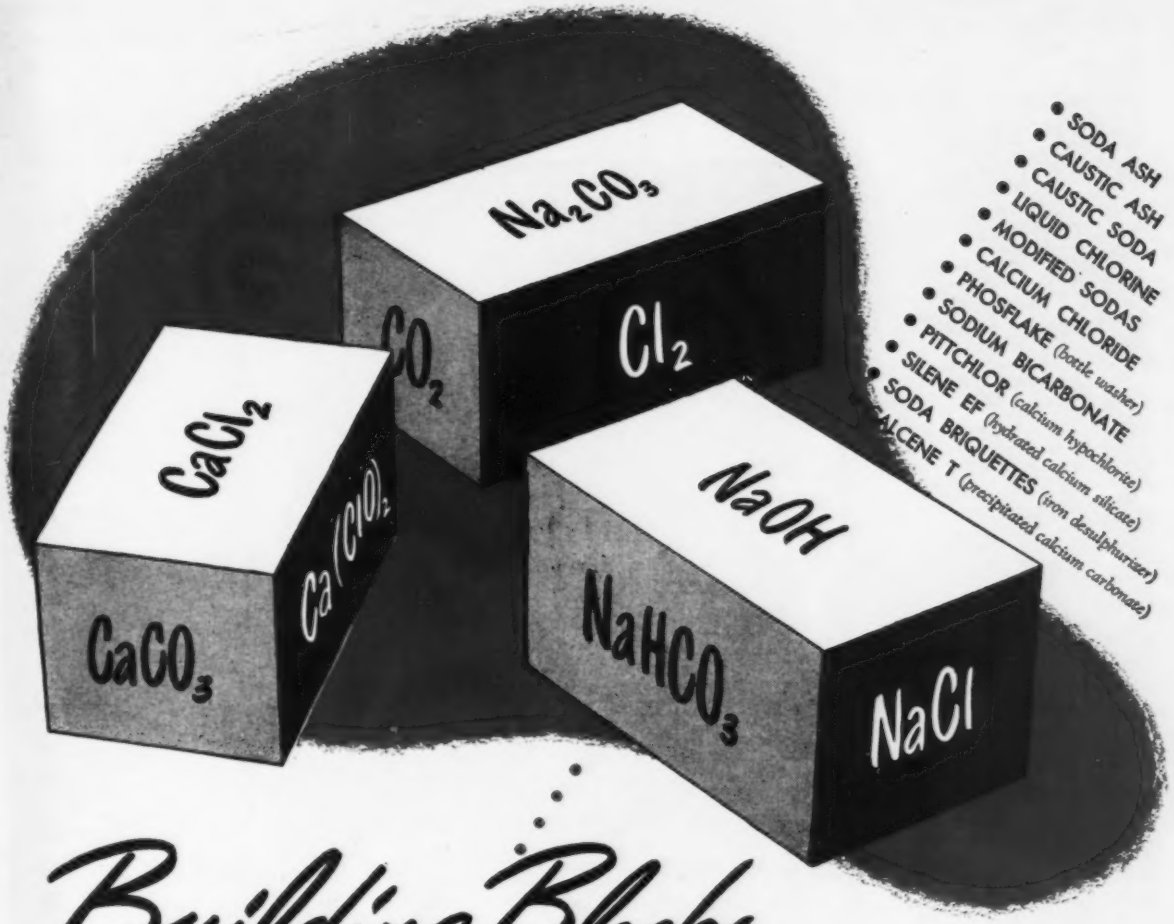
Pimentel, who is acting as a consultant to the commission, is conducting a survey of heavy industries to determine the tonnage of material they might have shipped to them by river if the stream were made navigable further north.

Mead's DuBay Monument Is Dedicated

WISCONSIN RAPIDS, Wis.—The people of Knowlton community have recently placed a monument over the grave of John Baptiste DuBay, in the Knowlton cemetery park on the west side of Highway 51, about 2 miles south of Knowlton. It is a gift to the town by George W. Mead, president of the Consolidated Water Power and Paper Company of this city.

DuBay was a picturesque Indian-French trader and woodsman whose name became prominent in Wisconsin history and literature. The DuBay power development, conceived and developed by Mr. Mead, bears his name.

The monument is of black marble mounted on a spacious base which is topped with pebbles set in cement. On the face of the marble block are the words, "John Baptiste DuBay, 1810-1887, Son of a Menominee Indian Princess, Son-in-law of Chief Oshkosh, Treaty-maker, Interpreter, Indian Trader, Firm Friend of White Men."



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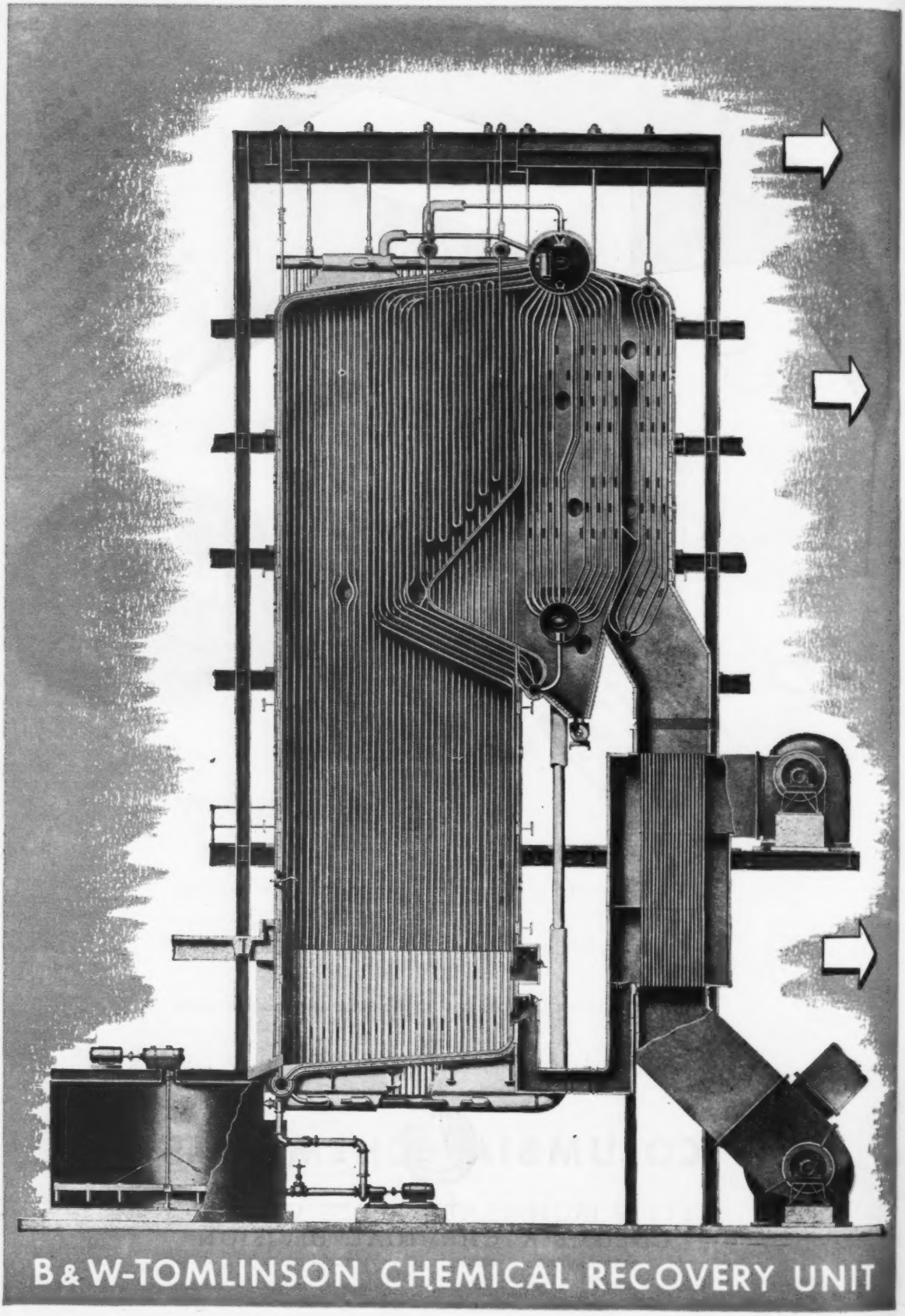
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Industry's BIGGEST ORDER for Chemical Recovery Units ...to B&W

A Southern paper company has ordered four 275-ton and one 125-ton B&W-Tomlinson Recovery Units. In point of both number and capacity, these five units constitute the largest single contract ever awarded for chemical recovery equipment. Significant also is the fact that the four larger units are duplicates of a B&W-Tomlinson Recovery Unit recently installed for this same customer.

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275-ton unit illustrated on opposite page.

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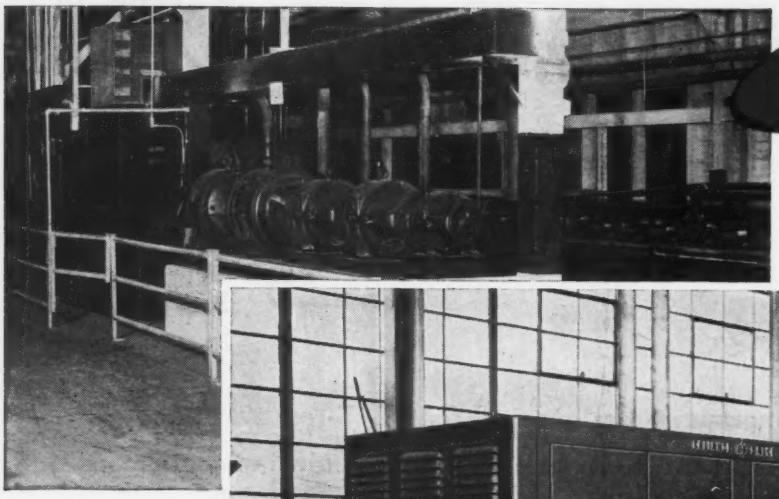

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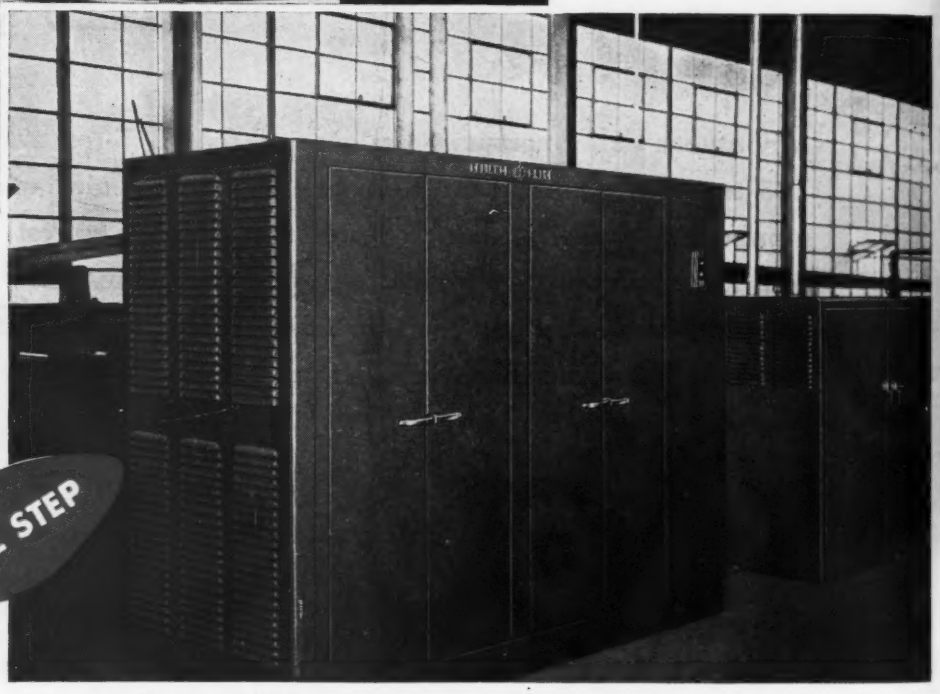

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Lester Smith Will Join St. Regis

KAUKAUNA, Wis.—After serving as mill manager at the Combined Locks Paper company for the last six years, Lester J. Smith has resigned this position to become mill manager for the St. Regis Paper company at their mills at Kalamazoo, Mich. He begins his work at Kalamazoo Dec. 1.

Previous to returning to Combined Locks Mr. Smith was with the International Paper company for seven years in similar capacities at mills at Glen Falls and Ticonderoga, New York. He also worked for the Thilmany Pulp and Paper company in Kaukauna for a year and a half, and for the Combined Locks company for nine years, from 1923 to 1932.

The St. Regis Paper company has a number of mills and the Kalamazoo mill was recently acquired from the Bryant Paper company. It consists of three units with seven paper making machines and another unit with twenty coating machines.

Mr. Smith has been widely known for his athletic ability, particularly as a baseball player a while back when he played for practically every town that had a baseball team in semi-pro ranks in the state of Wisconsin. He played for Kaukauna in the old Valley and Wisconsin State leagues and managed the Kaukauna club for a couple of seasons. In his early baseball career he played with Ottumwa, Iowa, in the old Mississippi Valley league in organized baseball and made quite a reputation as a hitter. He also was with the Detroit Tigers of the American League for one season.

While a member of the Kaukauna baseball team he was usually the league's leading batter as well as the loop's home run king and led the Kaukauna nine to several league championships.

Brightwater Seeks Name For Plant Publication

ADAMS, Mass. — A monthly plant paper is one of several post-war plans to be put into effect by the Brightwater Paper Company, it was announced today, by Joseph Curtin, personnel manager. While the publication will serve in some measure as a medium between employes and management and will be financed by the concern, Mr. Curtin explained that the policies of the paper would in no way be company controlled or dominated. It will be edited and managed by a committee of employes, he said.

The publication will print news items on social and sporting activities of company employes but it will contain numerous innovations plus up-to-the-minute data and analysis on current events in the paper world, the personnel manager stated.

A contest to determine the name of the new paper is being conducted at the plant, and the winner will be awarded a prize by the management, it was announced.

The paper company has forged ahead in the research field under the personal supervision of Chief Plant Chemists George Verow, Jr., and Robert Donnelson, until it now shares a place alongside larger concerns.

CPA Asks Industry to Apportion Paper to GPO

WASHINGTON — A Civilian Production Administration official this week told of plans to increase supply for Government use.

A CPA statement said that its advisory committee from the groundwood, book and writing paper industry has recommended that paper mills set aside voluntarily a percentage of their production for Government needs.

CPA officials were quoted in the statement as expressing "satisfaction with assurances from the committee, which said that the paper companies were ready to assume their fair share of the Government load."

Bill Campbell Retires

SAVANNAH—W. L. (Bill) Campbell who has been southern representative of Draper Brothers Company of Canton, Mass., for nearly nine years is retiring and will make his home in Denver, Colo., in the future. Mr. Campbell has had a long and successful career in the making of kraft and other papers and has been superintendent of some of the outstanding mills making these products as well as in the selling field of felts, machinery and various other items. His home in the future will be at 802 South Vine Street, Denver, although he intends to put in plenty of time at his ranch outside of Denver where he will indulge in his hobby of hunting and fishing.

Celanese Profits Are More Than Doubled

NEW YORK—Net profits of Celanese Corporation of America for the first nine months of 1946 were more than double those of a year ago, according to the company's interim report sent to stockholders Thursday by Harold Blancke, president. The profit for the period amounted to $11,573,513 after all charges and taxes, against $5,630,340 in the first nine months of 1945.

For the third quarter of 1946 the consolidated net profit amounted to $4,129,109 after all charges and taxes, contrasted with $4,010,290 for the three months ended June 30, 1946, and $1,830,622 for the third quarter of 1945. Earnings for the third quarter of 1946 were equal, after preferred dividends, to 61 cents a share on 5,514,107½ common shares, compared with 58 cents a share on the same basis in the second quarter.

Newsprint Output At New Top in October

NEW YORK — Newsprint production in Canada during October 1946 amounted to 376,436 tons and shipments to 387,294 tons, according to the News Print Service Bureau. Production in the United States was 67,248 tons and shipments were 66,966 tons. The output in Newfoundland was 32,581 tons and shipments were 23,006 tons making a total North American production of 476,265 tons and shipments of 477,266 tons. Total production in October 1945 was 403,526 tons and shipments were 391,087 tons. Production in October 1946 was greater than that of any month on record.

The Canadian mills produced 754,018 tons more in the first ten months of 1946 than in the first ten months of 1945, which was an increase of 28.1 percent. The output in the United States was 43,780 tons or 7.3 percent more than in the first ten months of 1945; in Newfoundland production was 29,677 tons or 10.8 percent more, making a total increase of 827,475 tons, or 23.2 percent more than in the first ten months of 1945, and also was higher than in any preceding similar period.

Stocks of newsprint paper at the end of October were 113,032 tons at Canadian mills, 12,552 tons at United States mills, and 77,991 tons at Newfoundland mills, making a combined total of 203,575 tons compared with 204,576 tons on September 30, 1946, and 130,264 tons at the end of October 1945.

Kimberly Opens Area To Parking Lot Use

NEENAH, Wis. — Kimberly-Clark Corporation's new parking area north of the Badger-Globe mill was scheduled to be in use by the latter part of the current week. The area, constructed by widening and building up the shoreline of the Fox river, provides space for at least 90 cars. The project included the building of a permanent coffer dam along the river, special sewer pipe installations to take care of mill waste, and filling in of the area to bring it level with the railroad spur track.

CPA Approves Gulf States Mill

WASHINGTON, D. C. — The Gulf States Paper Corporation has been authorized to build a $490,000 addition to its existing Tuscaloosa, Alabama, wrapping paper and shipping carton paper plant, the Civilian Production Administration said this week. This was the biggest job approved in Washington last week by CPA's Facilities Review Committee.

Buyers Find Hope In Recession Prospect

NEW YORK — Even with prices decontrolled on paper of various types the Nation's purchasing agents look with dark glasses on a prospect that they wish were more hopeful, so far as quantities and deliveries are concerned. In a bulletin to its membership the National Association of Purchasing agents finds there must be a falling off in demand before a balance can be struck between supply and requirements. Admitting that this may be the hard way to balance the books they believe the adjustment may come some time early next year.

As for wood pulp, H. L. Weber, of Fibreboard Products, reports:

"'Well, in a nutshell, its bad — and may get worse before it gets better.' That is what one who knows just said about market wood pulp in these United States; don't go overboard that he is wallowing in overstatement. Right here, we had better talk about that supply-and-demand thing . . . remember?

"You definitely are not getting all of the paper and boxes you want, in spite of the fact that the latest figures show paper and board mills' running time at 16 per cent and 9 per cent more than a year ago. There is your unsatisfied demand.

"Meanwhile, domestic and Canadian mills are supplying about the same as before and, while Finland is continuing to ship pulp, the quantity is small compared with total needs.

"That leaves inventories. Due to large 1945 last open-water shipments from Sweden, we built up a fair inventory in February, 1946, but, since that date, these supplies have been going down. We may not get that help this year, and we certainly will not unless something is done quickly, for . . . here comes Winter . . . the Baltic will be frozen over in a couple of weeks."

"The condition of the fine-paper market continues to become slowly worse," reports E. E. McCulley, of the Louisville Courier-Journal Job Printing Company. "Mills are having to make strenuous efforts to conserve required fibers. The latest conservation measure is that one requiring future shipments to consist of 80 per cent in 16-lb. substance and 20 per cent in 20-lb. substance.

"The conservation of pulp and its extension will come about by the reduction of your quota in pounds, since you will get as many sheets in your quota as formerly but 80 per cent of them will weigh 20 per cent less; so, the mill will save 20 per cent of the pulp on 80 per cent of each quota and thus still give you as many sheets as formerly but reduce their own pulp requirements. This is expected to help considerably in keeping the mills operating at the maximum consistent with their individual pulp supplies.

"One of the larger magazine groups is reported to have about completed negotiations for the sale to one of the large paper-making companies of several paper mills, acquired some months ago. It is understood that, in the negotiations, a provision will be made to insure the magazine group a continuing supply of paper adequate for its needs.

"It appears that in the magazine field some fall-off in their demands on mill production can be reasonably expected. From information available, the entire magazine field is experiencing very substantial reductions in subscription renewals and increasing percentages of returns from newsstand sales. Reduction in demand in any paper class will help relieve the pressure on all classes of paper."

Anyone who has been reading kraft-paper reports for the last several months must have noticed the seeming repetition which appears, and this is due solely to the fact that the kraft-paper situation has been in such a condition that one could almost say, "No change since V-J Day." Stuart Edgerton of the United States Rubber Company says, "As a matter of fact, the situation has been growing steadily worse and there is no reason to quote a lot of statistics which just add up to the same answer.

"There is less paper available now and there is more demand for what is available, and there seems to be no possibility of a change until one of two things happens. Either there will be a greater supply or there will be a smaller demand. Our guess is that the latter condition will arrive first."

Dry weather is threatening newsprint production schedules in Newfoundland and some sections of Canada and northeastern United States. Lack of freight cars is handicapping both United States and Canadian mills. One mill reported recently that it had only ten cars on hand and none in sight, whereas its minimum requirements are forty per day.

North American production in September declined sharply from the high August figure. The total 420,574 tons represented an increase, however, of 18.6 over September, 1945. Nine months' production is 23.9 per cent over the same period of last year. Consumption of all United States users was 378,010 tons in September, an increase of 25.8 per cent over the same month last year. Nine months' use is up 27.6 per cent over 1945. Stocks of 525 newspapers reporting to A.N.P.A. represented 34 days' supply at the end of September, comparing with 37 days' supply a month earlier, and 44 days' supply a year earlier.

The largest United States producer, at the time this is written, has not increased the $74.80 price which it had announced for the balance of this year. However, it is rumored that it will ask its customers to accept the higher price. One Southern mill increased its price by $6.67 instead of $10, apparently due to a guarantee in its contract to limit its price to the average of the two largest Canadian producers and the largest United States producer.

One quick result of the price increase is the speeding up of the opening of the newsprint mill at Three Rivers, Quebec. This three-machine mill, closed since 1930, was scheduled for opening early in 1948, but recent reports say it will open early in November.

Truman Directive Sweeps All Limits from Pulp and Paper

(Continued from page 9)

or even a series of orders at unreasonably high prices. But we are convinced that any such action would be a rare exception—so rare that it would have no real import in the general picture. We are convinced that the great majority of the producers would follow no such course. They would welcome the opportunity to restore an orderly production schedule and in doing so would establish an industry pattern which none could safely ignore. This would mean the resumption of production of the low end items to the benefit of the user of the industry's products. We can never over-emphasize that, as a service industry, the most effective service the industry can render its customers is to give them the lowest priced product which will adequately serve their needs. Intelligent selfishness dictates that any industry shall satisfy its customers and our industry is not so unintelligent that it cannot and will not recognize the way to its own best interests."

Paper manufacturers, meanwhile, see in decontrol the key to a better balance in the production ratio of high and low grade papers. Prices for low grade papers, heretofore too low for anything like a reasonable profit, are expected to advance slightly over recent ceilings for these grades. Once a semblance of balance in the supply-demand ratio of high and low grade papers is reached, prices for high grade papers are expected to drop or level off somewhere near the previous ceiling for such grades. The supply-demand situation with regard to wood pulp, is not expected to be altered greatly by decontrol. Most domestic producers are expected to begin quoting the European "on dock" prices which were put into effect last week, instead of delivered prices. With freight costs put into the discard by producers, pulp prices probably will rise $5 to $7.50 per ton; with only formerly subsidized mills asking considerably more because of their high operating costs.

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Our sales and engineering staffs will be glad to cooperate with you in solving your production problems whether they cover a complete machine or the reconditioning of your existing equipment.

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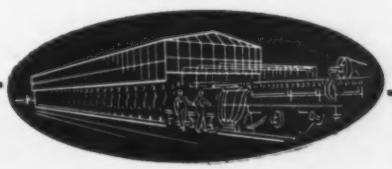


Half Billion Bags Is St. Regis Goal

PENSACOLA, Fla. — An increase of more than 500,000,000 units in the annual production of multiwall paper bags will be made possible through a planned program of expansion at the Florida properties of the St. Regis Paper Company, Roy K. Ferguson, president, told a meeting of the Rotary Club here on Tuesday. Mr. Ferguson, accompanied by the company's executive staff from New York, spoke at the meeting in connection with the first official visit of St. Regis representatives following the recent merger of St. Regis and Florida Pulp and Paper Company interests, the latter headed by James H. Allen and associates. The merger marked St. Regis' entry into the kraft pulp and paper industry of the South.

Through the merger with Florida Pulp and Paper and plans of its subsidiary, Alabama Pulp and Paper Company, to construct a new $10,000,000 kraft paper mill, "we are assured of a kraft paper center here in Pensacola capable of turning out 400 tons a day, or enough kraft to make over 500,000,000 multiwall bags a year," Mr. Ferguson stated.

"This new consolidation of operations between the Florida Pulp and Paper Company and the St. Regis Paper Company," he added, "is a straight, realistic step in the joining of management, facilities for the production and conversion of kraft paper, and other resources which will unquestionably strengthen both organizations."

Executives of the St. Regis Paper Company attended meetings of directors of Florida Pulp and Paper and of Alabama Pulp and Paper, and toured the paper- and pulp-making facilities and the outlying woodlands.

Blodgett Reports Pulp Seriously Short

HOLYOKE—The pulp shortage in the paper industry is more grave now than at any time in recent years and inventories are precariously low.

That was the statement made by Thomas H. Blodgett, president of American Writing Paper Co., to the stockholders of the company today in connection with the nine month financial statement. In the first nine months of this year, Eagle A. earned $164,365 as compared to $108,017 in the same period last year. Its third quarter profits totaled $42,305 as compared to $28,581 in the third quarter of 1945.

Toronto Hears Rumors of Abitibi Refunding Plans

TORONTO—Plans for refunding the outstanding bonds of Abitibi Power and Paper Co., with a lower coupon rate, are being talked of in the street. Nothing definite has as yet been decided upon, it is understood. According to Canadian Dow Jones, an arrangement whereby the holders of the $53,093,700 five-percent first mortgage bonds will retain their holdings, in the event of a refunding operation, should it develop, and at the same time accept a reduced rate of interest, is held out as a possibility.

Brotherhood Names Hill

ALBANY—William M. Hill, of Powell River, B. C., has been appointed seventh vice-president of the International Brotherhood of Papermakers, succeeding Harvey Raymond, of St. Catherines, Ont. He has been identified with the organization for many years.

International Boosts Net for 9 Months

NEW YORK — International Paper Company reports for the nine months ended September 30, net income of $21,252,904 after all charges, including provision of $16,053,781 for United States Federal and state taxes and Canadian and other foreign taxes. This compares with a net income of $7,283,592 for the nine months ended September 30, 1945, after taxes of $18,383,959. For the third quarter net income was $9,161,846 after all charges and taxes of $6,442,838, against a net income of $1,381,946 for the like 1945 quarter after taxes of $5,249,867.

Net income for the nine months is held to reflect an increase of $613,640 resulting from cancellation of provisions made during the first six months of 1946 to convert net earnings of foreign properties substantially to a United States dollar equivalent. On July 5, the Canadian government adjusted the official rate of exchange on the Canadian dollar to parity with the United States dollar so that these provisions were no longer required. This also includes net earnings of foreign properties amounting to $4,862,950 for the nine months ended September 30, 1946, and $2,300,427 for the quarter ended September 30, 1946, both of which include $1,261,998 profit on special and non-recurring items.

Net sales for the nine months ended September 30, 1946, amounted to $205,431,271, against $177,532,195 for the like 1945 period. Sales for the third quarter totaled $75,882,386, compared with $59,100,940 for the corresponding 1945 quarter.

FINANCIAL RECORD OF THE WEEK

New York Stock Exchange

High, Low and Last for Week Ending November 9, 1946

STOCKS

	High	Low	Last
A. P. W.	5⅜	5½	5⅜
Armstrong Cork Co.	47	44½	45⅝
Celotex Corp.	27½	25½	26
Celotex Corp., pf.	21	21	21
Certain-Teed Products Corp.	18⅞	17	18½
Certain-Teed Products Corp., pf.	....	....	....
Champion Paper & Fibre Co.	23	21¾	22½
Champion Paper & Fibre Co., pf.	112	112	112
Congoleum Nairn Co.	28	25¾	27
Container Corp. of America	44	38⅝	44
Continental-Diamond Fibre Co.	10	9½	9½
Crown-Zellerbach Co.	29¾	28⅛	29¼
Crown-Zellerbach Co., pf.	107¼	105¾	105¾
Dixie Cup Co.	34	32¼	32¼
Dixie Cup Co.—A	54	54	54
Flintkote Co.	30⅜	26¾	28⅝
Flintkote Co., pf.	108	107	107
Robert Gair	9	8	8¾
Robert Gair, pf.	20	20	20
International Paper Co.	46¾	43½	45¾
International Paper Co., pf.	103½	102½	103½
Johns-Manville Corp.	130	126¾	128
Johns-Manville Corp., pf.	....	....	....
Kimberly-Clark Corp.	25¼	24½	24½
MacAndrews & Forbes	36	36	36
MacAndrews & Forbes, pf.	....	....	....
Masonite Corp.	55	52	53
Mead Corp.	22⅜	20¾	21¾
Mead Corp., pf. 4¼	106½	105	106½
Mead Corp., pf. 2	48	45½	48
National Container Corp.	32¾	30⅝	32
Paraffine Companies, Inc.	63½	63½	63½
Paraffine Companies, Inc., pf.	....	....	....
Rayonier, Inc.	19⅛	17¾	18⅜
Rayonier, Inc., pf.	36⅜	35¼	35¼
Ruberoid Co.	54¾	52½	53
Scott Paper Co.	44½	42	44⅛
Scott Paper Co., pf.	103½	103¼	103¼
Sutherland Paper Co.	42	42	42
Union Bag & Paper Corp.	30	27	29
United Paperboard Co.	12	11⅛	11½
U. S. Gypsum Co.	110½	104	105½
U. S. Gypsum Co., pf.	194	194	194
West Virginia Pulp & Paper Co.	41	39	39⅛
West Virginia Pulp & Paper Co., pf.	....	....	....

BONDS

Abitibi Pulp & Paper Co. 5s '53	....	....	....
Celotex Corp. 3¼s '60	102½	102½	102½
Certain-Teed Products Corp. 5½s '53	....	....	....
Champion Paper & Fibre Co 3s '65	....	....	....
International Paper Co. 5s '47	....	....	....
Mead Corp. 3s '66	....	....	....

New York Curb Exchange

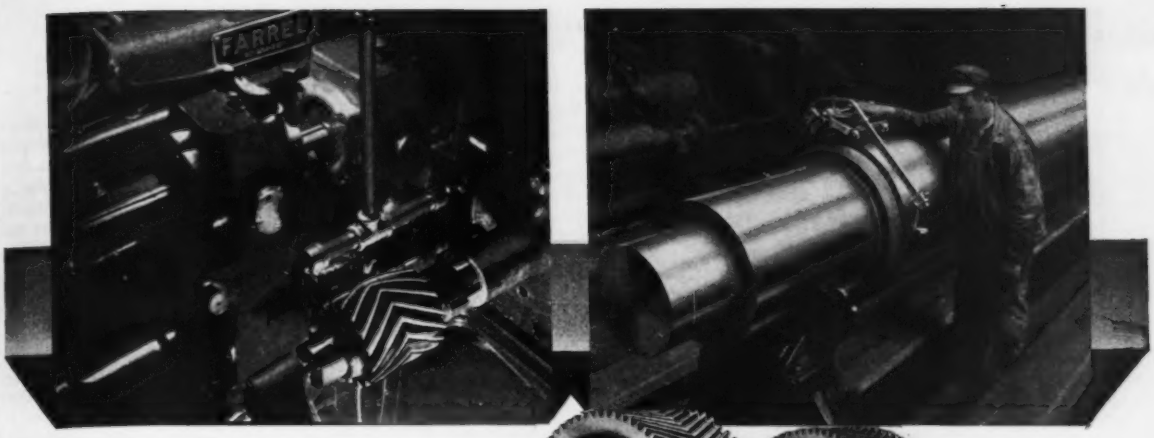
High, Low and Last for Week Ending November 9, 1946

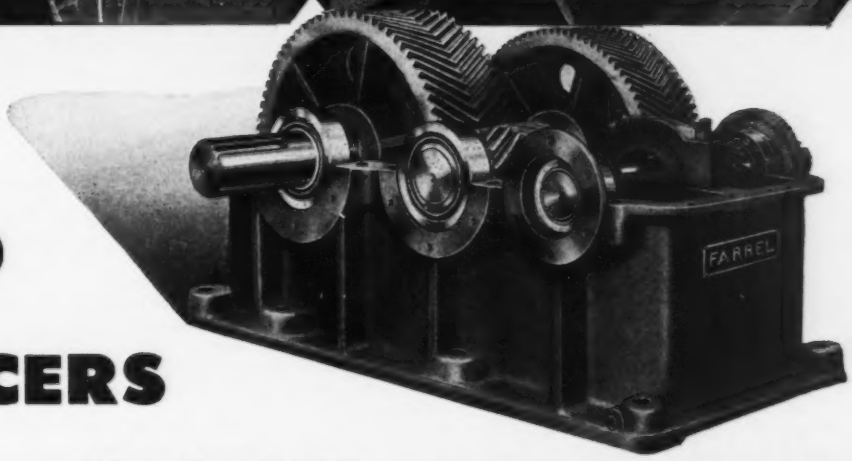
STOCKS

	High	Low	Last
Great Northern Paper Co.	41¾	40	40¼
Hummel-Ross Fibre Corp.	15⅞	14½	15½
St. Regis Paper Co.	10¼	9⅛	9⅛
Taggart Corp.	7⅞	7⅞	7⅞

BONDS

American Writing Paper Co. 6s '61	....	....	....





SPEED REDUCERS WITH A DOUBLE BACKGROUND

FARREL
The Gear with a Backbone

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ROLLS: Chilled Iron, Dry Sand, Meehanite, Alloy Iron, Steel, Chromium Plated
FOR: Calender Stacks
Board Calenders
Super Calenders
Glassine Calenders
Friction Rolls
Breaker Rolls
Smoothing Rolls
Coating Rolls
Creping Rolls
Plater Rolls
Cutting Rolls
Paraffining and Waxing Rolls
Saturating Rolls
Silicating Rolls
Miscellaneous Special Purposes
CALENDERS: Paper and Board
GRINDING MACHINES: Roll
CALIPERS: Roll
GEARS, CUT: Spur, Single and Double Helical (Farrel-Sykes Continuous Tooth Type)
SPEED REDUCING GEAR UNITS
SPEED INCREASING GEAR UNITS
FLEXIBLE COUPLINGS

As one of the principal producers of gears and speed reducers in the United States, Farrel's specialized knowledge of gear drives for paper machinery is as extensive as their knowledge of rolls. To the prospective purchaser of paper mill drive equipment, this double background provides assurance that Farrel can specify, from experience, the most efficient drive for the particular application.

The herringbone gears used in these speed reducers are of the famous Farrel-Sykes *Gear with a Backbone* design. Instead of being separated by a center groove, the two helices are joined—forming continuous teeth across the face of the gear. The place where the helices meet is called the *backbone* because it provides extra strength and load-carry capacity in small space.

High precision gear generation, rigid and accurately ground shafts properly mounted in roller bearings, and heavy section cases that hold rotating elements in precise alignment assure long, trouble-free life.

Farrel speed reducers are available in a complete range of sizes, for any capacity, with ratios up to 300:1. For complete information write for catalog No. 438.

FARREL-BIRMINGHAM COMPANY, INC.
ANSONIA, CONN. • BUFFALO, N. Y.

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Masonite Earnings Are Running Ahead

WAUSAU, Wis.—Directors and officers of Masonite Corporation were reelected Wednesday, November 6, at meetings in the office of Aytch P. Woodson, secretary, in the First American State Bank Building. The directors voted a dividend of 25 cents per share on common stock, payable November 30 to stockholders of record as of November 16.

Reelected as directors were: John L. Alexander, Aurora, Ill.; John M. Coates, Eugene Holland, M. P. McCullough, F. L. Saberson and Charles P. Worcester, all of Chicago; R. M. Heskett and Charles J. Winton, Minneapolis; C. H. Westphalen, Laurel, Miss., and D. C. Everest and Mr. Woodson, Wausau. Messrs. Winton and Worcester did not attend the meeting.

Officers reelected were: Mr. Holland, president; Mr. Saberson, Mr. Westphalen and Mr. Everest, vice-president; Mr. Woodson, secretary; Mr. Coates, assistant secretary and assistant to the president; Mr. Winton, treasurer, and Ben O. Anderson, Chicago, assistant treasurer.

Earnings for the first quarter of the current fiscal year are running substantially ahead of last year, it was reported at the meeting. Masonite's fiscal year ends on August 31. The printed annual report for the last fiscal year stated that net profit, after deductions for taxes, depreciation and amortization of patents, amounted to $2,360,939.

After deductions for dividend requirements on the 35,000 shares of 4½% preferred stock, the profit amounted to $2,203,439 or $3.67 per share on the 600,000 shares of common stock outstanding, compared with $2.20 per share for the previous year.

Net sales for the fiscal year, which were affected by a work stoppage at the Laurel plant, were $16,448,340, compared to $17,530,589 for the previous year.

During the year, cash and government securities in the amount of $3,670,635 were used to redeem all of the company's outstanding 4½% preferred stock, which increased the equity of the stockholders $1.88 per share. The corporation now has no preferred stock and no bonded indebtedness, it was reported.

Mr. Holland, in a letter, cited delays in completing additional manufacturing facilities at Laurel, Miss., because of inability to get deliveries on equipment, but said that every effort was being made to put the increased facilities into operation early next year.

He also reported plans for extensive additions to the manufacturing facilities of Masonite Corporation (Australia) Ltd., and Masonite Company of Canada, Ltd., in which the company has a financial interest. No new financing is required.

"Arrangements have been made for the building of a hardboard and insulation board plant in the Union of South Africa," the letter said. "Most of the funds for this new project will be furnished by local interests. Your corporation will invest $220,000 in the common stock of the African company. In addition, we will furnish engineering services to the African company and give them trademark rights in the Union of South Africa, for which we will receive a substantial amount of common stock. We believe the Union of South Africa has a large potential market for Masonite products."

Mr. Holland stated that demand for Masonite products has been so great it was necessary to place all customers on an allotment basis. He cited growing cost of raw material, particularly pulpwood, but said that part of this will be reduced by savings resulting from seven-days-a-week operation. The company has signed a new contract with the International Woodworkers of America, affiliated with the CIO, effective last August 10, and arranged for the shift from a six-day week.

Mr. Holland also said the corporation expects to have two new by-products on the market in the near future. He added that the research and patents committee has been reorganized, and will continue its efforts to develop new processes, cost- saving equipment and new products.

A survey is being conducted by the market research department covering sales, pricing, advertising and promotion policies. A plan for budgetary control of expenses has been completed in certain departments and will be extended further soon.

Combined Locks Mills To Get More Power

KAUKAUNA, Wis. — The Wisconsin Public Service Commission last week authorized the City of Kaukauna to construct and equip a hydroelectric power plant at Combined Locks, Wis., at a cost of $750,000. The city made its application for authority to construct the dam at the south end of the Little Chute dam on October 24, after approval of the plans by the common council.

The additional plant, which will include three 1,655 horsepower turbines and three 1,100 kilowatt generators, was requested to meet the increasing demand from industry and private users. Thilmany Pulp and Paper Company has entered into a 10-year agreement with the city for more power, and the Combined Locks Paper Company also is increasing its power requirements, according to H. F. Weckwerth, manager of the utility.

The station will be semi-automatically controlled from the new Badger plant of the utility about three miles distant, and the improvement will include the building of a new 12,000 volt line from the plant site to the Combined Locks Paper Company.

Freight Car Delay Retards Shipments

WORCESTER—Railroad traffic congestion is causing New England businessmen many headaches, but the situation in Worcester is not as discouraging as other sections of the Eastern seaboard. The Boston Chamber of Commerce reports the overall picture is the toughest in more than 40 years shipping experience for manufacturers in this area.

Worcester Chamber of Commerce finds, with few exceptions, shippers here are doing their utmost to relieve the freight car shortage. There has been no extended congestion in Worcester since Labor Day week-end, when the holiday delayed unloading heavy shipments which came into the city during that period.

The problem locally is the ratio of incoming to outgoing freight cars, 2½ to 1. That means many manufacturers receiving large shipments in carload lots are not in a position to load these same cars with finished products and shunt them out immediately.

The Interstate Commerce Commission and Federal Transportation officials, realizing the situation in New England, sometime ago ordered the railroads to deliver 400 empty freight cars daily to the connecting roads, these cars to come from this section. Worcester shippers, allowed 48 hours free time to unload before demurrage charges apply, have been quick to get cars unloaded. The demurrage assessed on an ascending scale amounts to about $16 a day per car after the fifth day.

Elsewhere in New England, the shortage of freight cars is acute, the Boston Chamber reports. One New England example cited is that of the paper mills. These big northern mills have no storage facilities and load their wares directly from paper machines onto freight cars.

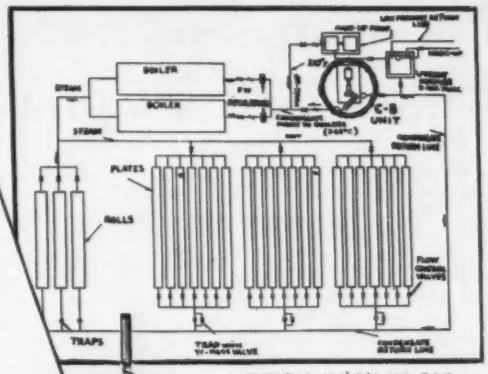
Recently, one of the largest mills—Great Northern Paper Co. of Millinocket, Me.—was threatened with a shutdown because of lack of cars. Closing, in this case, was avoided by railroads providing some "cripple" cars for storage. Another large manufacturer, the Boston Chamber found, may soon have to cut operations from five to four days a week due to lack of freight cars. A smaller New England company needing ten cars a day was allowed six and learned the lack of four cars daily made the difference between profit and loss. This company closed down recently, and is still closed.

Huyck Discusses Wage Rates

RENSSELAER, N. Y.—Several conferences between labor organizers and representatives of F. C. Huyck & Sons, during the past few weeks regarding wages failed to bring an agreement. The mills are running night and day.

"The speed of both .030 and single wall, and all grades of double wall was increased in excess of 100 lineal feet per minute over our former production."

The above statement is a quotation from a letter from a paper company with 5 manufacturing plants.



TYPICAL HOOK-UP FOR DRAINING A CORRUGATOR

HERE is a tested and proven way to improve the quality of your product while speeding the production of CORRUGATORS and COMBINERS.

It is a system of high pressure condensate return that promptly eliminates condensed steam, non-condensible gases and air from the rolls and plates and returns the condensate to the boilers at high temperature.

This results in reduced drying time, uniformly hot plates and steady boiler pressure. As quoted above, one manufacturer, for example increased board speeds from 230-240 ft. per min. to 350 ft. per min.—a 52% production increase.

Investigate NOW and prepare for increased plant capacity.

Write for a copy of Publication 3250.

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3103 N. 17th St., Phila. 32, Pa.

COCHRANE C-B SYSTEM

CONDENSATE RETURNED TO BOILERS AT HIGH PRESSURE AND HIGH TEMPERATURE

Nicholson Sees Swedish Pulp Exports Off Despite Decontrol

World wide demand for Swedish dissolving pulp and the extensive use of pulp in the manufacture of artificial fibres will have a decided effect on the volume of Sweden's pulp exports to the United States. This was pointed out to the PAPER TRADE JOURNAL correspondent when he finally caught up with the elusive TAPPI president, Gunnar W. E. Nicholson in New York. As TAPPI's president, and vice-president of the Union Bag and Paper Co., Mr. Nicholson returned from a six-weeks' inspection tour studying industrial progress in Denmark, Norway and Sweden in time to attend TAPPI meetings at Detroit, Milwaukee and New Orleans.

While Mr. Nicholson was highly impressed with Sweden's streamlined efficiency in the production of pulp and paper, and the modern design of its plants; he pointed out that there is a limit to that country's output of pulp corresponding to its available pulpwood supplies. To date, the shortage of fuel has kept the Swedish pulp industry down to approximately 55 percent of capacity. Further, pulpwoods labor has been diverted, to some extent, to the cutting of wood for fuel. This condition, coupled with increased markets for Swedish pulp in Great Britain, France, Italy and South America; and the trend in Sweden toward more profitable integrated operations has and will continue to make inroads on the volume of pulp available for export to the United States. Decontrol of ceiling prices in the United States, Mr. Nicholson believes, will undoubtedly spur shipments of Swedish pulp to this market, just how much remains a matter of conjecture.

Norway has not yet recovered from the effects of the damage wrought by its own underground in defensive action against the axis. Add to this, shortages of all kinds of materials, says Mr. Nicholson, and you can well understand why Norway is not expected to play a very important role in the export of paper or pulp for some time to come. Finland, meanwhile, has turned over some of her best mills in Southeast Karelia to Russia as part of her war reparations; and Mr. Nicholson questions the feasibility of building new mills because of that country's woods limitations.

Turning to the United States, Mr. Nicholson views the better utilization of our forests, and domestic wood's possibilities, especially Southern gumwood and Northern poplar and aspen, as a prime factor in meeting future demands for pulpwood and pulp in this country. Not only are hardwoods in the United States coming into their own, but the trend of American companies to build mills in Canada will also improve the raw materials supply picture of domestic paper and pulp manufacturers.

Both Mr. and Mrs. Nicholson will long remember the warm reception attended them in each of the three Scandinavian countries they visited. The visit was highlighted by the fact that the Swedish Paper and Cellulose Engineer's Association saw fit to make Mr. Nicholson an honorary life member, an honor which has added significance since this distinction has been tendered to only three other men living outside of Sweden, and the first such honor bestowed on an American citizen. Mr. Nicholson also had the opportunity to visit his alma mater, Chalmers Institute of Technology, which brought back nostalgic recollections of student days in his native Sweden. An invitation by the Royal Academy of Engineering Sciences in Sweden and similar invitations from like groups in the other Scandinavian countries enabled Mr. Nicholson to study the progress being made in the technical institutes and industrial research laboratories in each of these countries. Included on Mr. Nicholson's itinerary were visits to Marma and Ostrand plants of the Swedish Cellulose Co., plants of the Uddeholm Co. at Skoghall, and the Swedish Wood Products Research Institute at Stockholm.

Hudson Valley Mills Seek More Help

COHOES, N. Y.—Production in paper mills throughout the Hudson Valley is being maintained at full capacity while reports indicate that many are booked far ahead with orders. The help problem is still causing manufacturers some concern especially where night shifts are being observed. Among the mills seeking enlargement of forces during the past few weeks, were Embossing Company, Albany; Wallomsac Paper Mills, Inc., Hoosick Falls; Hudson Valley Paper Company, Cohoes; Fort Orange Paper Company, Castleton; Albany Felt Company, and others.

Bloom Heads Jersey Merchants

NEWARK, N. J. — Bernard Bloom, vice-president of the J. B. Card & Paper Company, has been elected Chairman of the New Jersey Paper Merchants Association, an affiliate of the New Jersey Association of Credit Executives. Mr. Bloom is a graduate of Columbia University receiving his A. B. degree in 1934. During World War II he was with the American Red Cross as a Field Director in the Pacific area.

Wholesale Volume Rises 28 Per Cent

WASHINGTON—Wholesalers' sales of paper and paper products totaled $68,135,000 for the eight months of 1946 ending with August, 28 percent over those for the corresponding months last year, according to the Bureau of Census, based on figures of reporting firms.

The August total of $8,951,000 represented a gain of 11 percent over July, and was 49 percent over August a year ago. Inventories showed no change in August from July, but were 21 percent higher than for August last year.

Sales in the New England states totaled $2,697,000 for the eight-months' period, 32 percent over those for the same months of 1945. August sales totaled $332,000, representing a 23-percent gain over July, and were 54 percent higher than in August last year. August inventories declined one percent from July, but were 17 percent above those in August last year.

Sales in the Middle Atlantic states totaled $19,215,000 for the eight months this year, 26 percent above those for the corresponding 1945 months. August sales totaled $2,012,000, 19 percent above July sales, and 42 percent over those of August last year. Inventories declined six percent from July, but were eight percent over those of August last year.

For the East North Central area, wholesalers' sales showed a total of $28,278,000 for the eight months, 38 percent over those for the same months last year. August sales totaled $4,581,000, ten percent higher than in July, and 71 percent higher than August sales a year ago.

Inventories gained three percent in August over July, and were 36 percent over those of August, 1945.

For the West North Central States, the eight months' total of $1,946,000 represented a 25-percent gain over the same period last year. Sales in August totalling $261,000 were 19 percent above July sales, and 40 percent higher than in August, 1945. Inventory changes were not shown for lack of data.

South Atlantic states showed a total of $5,496,000 for the eight-months' period. 20 percent over last year's corresponding period. August sales totalling $711,000 were five percent less than in July, but 12 percent higher than for August, 1945. August inventories gained three percent over July, but declined 13 percent from August of last year.

Homemakers Inspect Lakeview Mill

MENASHA, Wis. — The Menasha Homemakers' club went on a conducted tour through the Lakeview mill of Kimberly-Clark Corporation on Tuesday afternoon, November 5.

Just a Little Water
Keeps the Spillway Wet
Yes, and just a few tons of excess production can change this competitive nature of paper markets.
Far sighted mill executives are insuring against future possibility of dwindling profit-margins, by planning now to gain the extra income from expanded lines of colored paper and board. By utilizing modern color methods, many mills may now realize a greater percentage of profit on the "extra for color" than on the stock itself.
Conversant with the economics and techniques of modern coloring methods, National Aniline technicians can assist you in studying this profit potential; can follow through with stock compositions and color formulas as well as dependable delivery of quality dyes from nearby warehouse stocks.
We invite discussion of this comprehensive service.
NATIONAL DYES
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40 RECTOR STREET NEW YORK 6, N. Y.

Powell River Sales Takes Over Steele

NEW YORK—G. F. Steele & Company, Inc., has been acquired by the Powell River Sales Company and has been reorganized as the Powell River Sales Corporation. The corporation, headed by Anson Brooks, will have its main office in the Skinner Building, Seattle, and Mr. Brooks will make his headquarters there. The Los Angeles office, headed by F. R. Ward, will be in the Security Title Insurance Building, and the San Francisco office, located in the Russ Building, will be in charge of Donald L. Jeffries. The Manhattan office will be at the former Steele address, 400 Madison Avenue. V. R. Coudert and E. E. Barrett will head this office.

The corporation will perform all the functions for Powell River Sales Co. heretofore carried out not only by G. F. Steele & Company but by Newsprint Service Company, Bulkley, Dunton Pulp Company, Inc., the La Boiteaux Company, and Blake Moffitt & Towne.

The corporation is presently active in the Southwest market and will become active in all markets as from January 1, 1947. Blake, Moffitt & Towne, which has been actively and efficiently associated with Powell River products will carry out outstanding contracts, all of which expire December 31, 1947, but will continue to purchase Powell River newsprint and act as warehouse jobbers of Powell River newsprint on the Pacific Coast.

Harold S. Foley, President, and William Barclay, Vice-President of Powell River Sales Company will be on the Board of Directors of the corporation.

Hubbs Sets Up New Industrial Tape Dept.

NEW YORK — Widespread and increasing uses of pressure-sensitive tapes in many varied industries has led to the establishment of a special Industrial Tape Department by Charles F. Hubbs & Company of New York. The activities of this department will be directed by Frank A. Cardinale.

Mr. Cardinale has a background of twenty years experience in the pressure-sensitive tape field. The last ten years of this period he was connected with the Industrial Tape Corporation. His last post was that of district manager of the metropolitan area, which he resigned to assume his new duties with Hubbs.

Chicago Sapeyes Will Hear Dr. Kress

CHICAGO—Dr. Otto Kress, Technical Director of the Institute of Paper Chemistry at Appleton, Wisconsin, is to be the speaker at the next "open house" sponsored by the western division of the Salesmens Association of the Paper Industry. Dr. Kress will speak to members and guests at the November 18 noon session at the Hotel Sherman and many who have known and admired Dr. Kress for his own ability and for the contribution of the Institute to the trade, are expacted to be on hand for one of the record crowds of the year. Also expected as a guest is Bud Miles, vice-president of the Eastern division, who will be under the direct charge and supervision of Ed Edwards, Howard Paper Company, and vice-president of the western division.

Harry Gould Names Wheeler Aldine Department Head

NEW YORK—Harry E. Gould, President, Aldine Paper Company, has named Guy B. Wheeler, Jr., as manager of the decorative papers department. Mr. Wheeler, who recently dissolved his own specialty paper sales organization, Wheeler Paper Company of Philadelphia, Pa., will make his permanent headquarters at the home office of Aldine Paper Company, 535 Fifth Avenue, this city. Mr. Wheeler's appointment marks another expansion milestone in the twenty-five year history of Aldine Paper Company, Mr. Gould declared, indicating that the marketing activities for distinctive papers would now be considerably broadened.

Beginning his paper career with Garrett-Buchanan Company of Philadelphia, Mr. Wheeler succeeded the late Harry Fleming as head of the greeting card papers division there. He severed his connections with Garrett-Buchanan in June 1943 to form his own company, but his business future was cut short by a call to the colors. Resuming development operations in March, 1946, in the specialty papers market as the Wheeler Paper Company, Mr. Wheeler remained as active head of his business until completion of the negotiations with Aldine Paper Company.

Mando Increases Insurance Benefit By One Third

MINNEAPOLIS — A substantial increase in employee insurance benefits without additional cost to them has been arranged by Donald D. Davis, President of Minnesota and Ontario Paper Company. Under the Mando Plan of Employee Benefits, which has been in effect a year, weekly accident and sickness payments have been increased from a maximum of $15 weekly to $20 weekly.

In addition, the hospitalization phases of the plan have been made more liberal. Payments for hospital board and room are now $4.50 a day maximum compared to $4.00 previously. Benefits possible for other hospital expenses—X-rays, medicine, etc., have been doubled to a maximum of $40.00.

Robert E. Estes Joins Bulkley, Dunton Staff

NEW YORK—Robert E. Estes has joined the New York sales staff of Bulkley, Dunton and Co., Inc., in an executive capacity, it was announced by J. C. Marvin, vice-president. He will be in charge of paper sales to book publishers.

For the past 20 years, Mr. Estes has been associated with the Standard Paper Manufacturing Company and headed up its New York sales department. Previous to that he spent eight years with the Albermarle Paper Manufacturing Company. His 28 years' experience in the paper business has given Mr. Estes an intimate and well-rounded knowledge of all phases in manufacturing, sales and merchandising.

Entering the paper industry as soon as he finished school, he was appointed manager of New York sales for Albermarle at the age of 21 and at that time was the youngest paper manufacturer's representative in the trade. Although he is equally at home in both the book and writing fields, Robert Estes will specialize in the sale of papers to case-bound book publishers.

Mr. Estes is a native of Richmond, Virginia, and his home is in Scarsdale, New York. He is on the Board of Governors of the Paper Club of New York.

Levine, Howard and Benjamin Reform Selig Paper Business

NEW YORK — George Levine, Bernard H. Benjamin and George Howard have organized the Selig Paper Company, Inc. Howard and Levine were previously associated with M. Selig in the old Selig Paper Company. Mr. Benjamin was previously associated with the Walter Peek Paper Corporation. The new firm will continue servicing the paper consumers.

Saltonstall to Speak On Boston Program

BOSTON — Senator Leverett Saltonstall will be the speaker at the Fall Meeting and Dinner of the Boston Paper Trade Association at the Parker House Tuesday evening, November 26. This meeting is usually held on a Wednesday evening, but the date was decided upon to suit the convenience of the speaker.

Bergstrom Installs Two Jones-Bertrams Beaters

NEENAH, Wis.—The Bergstrom Paper Company has recently installed two 2,000-lb. Jones-Bertrams Patent Beaters, made by E. D. Jones & Sons Company, Pittsfield, Mass., to replace a number of old beaters. These new beaters are of the latest design, including stainless steel tub, and pneumatic control equipment.

Cooper offers a complete line of Stainless Steel Welding Fittings including 45°, 90° and 180° elbows, tees, caps, reducers and lap joint stub ends. Each are annealed, sandblasted and passivated for maximum corrosion, abrasion and heat resisting characteristics. The unusual performance of these fittings is the result of Cooper's 25 years of Stainless Steel "know-how."

THE COOPER ALLOY FOUNDRY CO.

HILLSIDE, NEW JERSEY

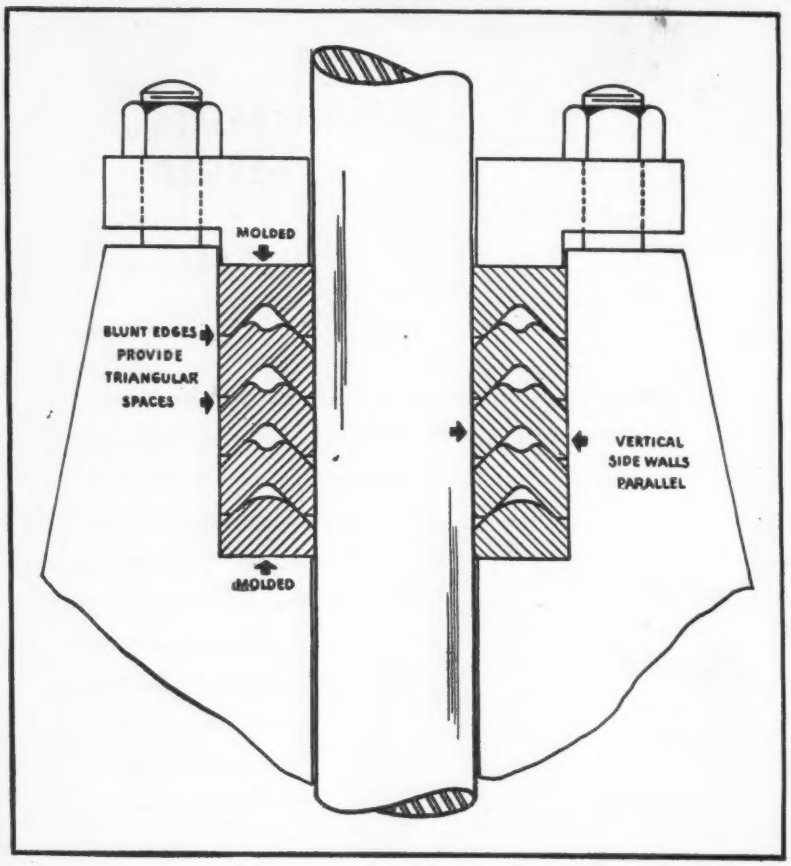
World's largest producer of Stainless Steel Screwed, Flanged and Welding Fittings

SERVING YOU THROUGH SCIENCE

Exclusive DESIGN!

U. S. MATCHLESS PACKING for rods and plungers

NO OTHER PACKING HAS ALL THESE ADVANTAGES



BLUNT EDGES—Give more efficient shape; allow fabric to reach end of packing, providing uniform strength throughout. In conventional packing (feather-edge design) fabric cannot be forced into sharp edge, leaving unprotected soft-rubber end to cause curling and chipping.

TRIANGULAR SPACED—Blunt edges provide triangular spaces for trapping loose scale, oil, etc. Result is lower coefficient of friction, less power required, and scaling does not score entire length of packing set.

PRESSURE BREAK—The triangular space of each ring breaks the pressure more quickly than ordinary types without this feature. With "Matchless" design, automatic action is faster, more effective.

MOLDED END RINGS—Tests show the female ring and the one next to it take 70% of the pressure on the set. In "Matchless" *all* rings are molded, are of proper density, and have no sharp edges to break off, as on end rings cut from slab.

EASY TO INSTALL—Matchless Packing has parallel side walls, while conventional packings are made with varying degrees of wall flare. "Matchless" rings slide easily into stuffing box; the flare type requires considerable effort and time.

For the past twenty-five years "Matchless" has been famous in industry for its unique advantages on hydraulic equipment, presses, rams, triplex pumps, outside packed pumps, and swivels on rotary drilling rigs. The self-adjusting, automatic action of "Matchless" results in reduced wear and tear on rods and plungers, minimizes friction and keeps down packing costs.

UNITED STATES RUBBER COMPANY

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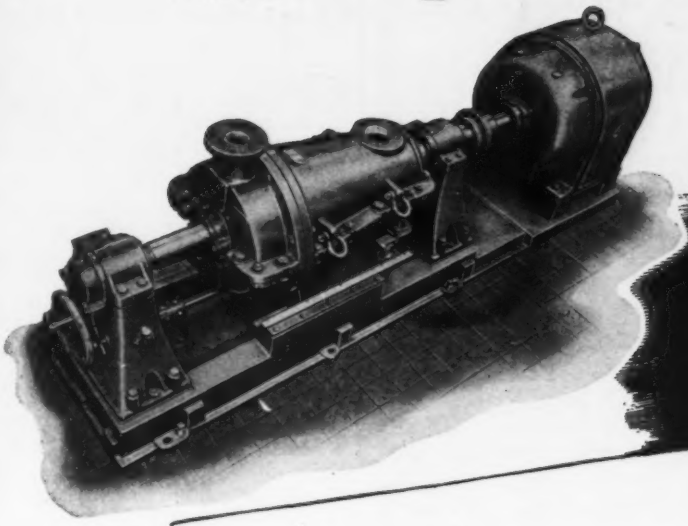
SERIES "C" OF TYPICAL JONES HIGH SPEED REFINER APPLICATIONS

a mighty mite for stock preparation



THE JONES *High Speed* REFINER

APPLICATION No. 7:—
In a glassine mill, two 60 H.P. High Speed Refiners replaced one large Jordan, saving 80 H.P., and also resulted in attaining a greater improvement in formation of sheet.

APPLICATION No. 8:—
In another glassine mill, one 60 H.P. High Speed Refiner made possible the elimination of three lava filled beaters.

APPLICATION No. 9:—
In a mill making rag and sulphite specialties, one 50 H.P. High Speed Refiner is doing the work of a 150 H.P. Jordan formerly used.

Jones

E.D. JONES & SONS COMPANY-PITTSFIELD, MASS.
Builders of Quality Machinery for Paper Mills

MANUFACTURERS AND DISTRIBUTORS IN CANADA: WATEROUS LTD., BRANTFORD, ONT.

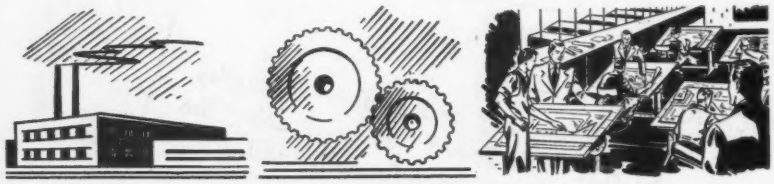
Here on a mammoth lathe in the Cheney Bigelow plant the shaft for a giant stainless steel cylinder mould is in the process of taking shape.

It is a ten-inch hollow shaft that was centrifugally cast from KA2SMO (Type 316 stainless steel) and will be used on a cylinder mould also entirely constructed of this metal.

The use of stainless steel is rapidly growing in paper mills because of the many advantages which have been proved for it. In pace with this movement, Cheney Bigelow has pioneered in the manufacture of stainless steel cylinder moulds.

For the best in service and craftsmanship on cylinder moulds of *any* material, call on Cheney Bigelow.

MORE FACTORY SPACE · MORE PRECISION MACHINERY · MORE ENGINEERS



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Pulp and Paper Mill Equipment

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OBITUARY

Arthur L. Hobson

BOSTON — Arthur Lambert Hobson, 74, president of the St. Croix Paper Company since 1926, died November 9 after a short illness. He lived at the Hotel Puritan, this city, and formerly made his home at Little Boar's Head, Rye Beach, N. H.

Born in Haverhill, he attended Haverhill High School and was graduated from Harvard College in 1895, when he became associated with a Berlin, N. H., paper mill. He was later with the International Paper Company and a Lawrence paper mill.

In 1904, he assisted his father in the founding of the St. Croix Paper Company at Woodland, Me., a town that was developed by the firm.

For 25 years he was a trustee of Bradford Academy, which later became Bradford Junior College, and served as chairman of its finance committee for many years. He was a director of the Towle Manufacturing Company and a member of the Algonquin Club, the Harvard Club of Boston, the old Exchange Club and the Wachusett and Pentucket Clubs of Haverhill.

Surviving are his wife, Alice Carey Gale Hobson; two daughters, Mrs. Everett Bradley, of Back Bay, Boston, and Mrs. Kilby Osborne, of Wellesley, Mass.; three sons, John Lambert Hobson, Arthur Lambert Hobson, Jr., both of Boston, and Philip Noyes Hobson, of Little Boar's Head, N. H., 15 grandchildren and one great grandchild.

Walter S. Fitch

WELLESLEY, Mass.—Walter S. Fitch, 68, who retired five years ago as construction engineer of the Dennison Manufacturing Company, Framingham, Mass., died November 7 at the Newton-Wellesley Hospital, after a long illness. His home was at 27 Summit street, Wellesley.

Born in Rockville, Conn., he was graduated from Wilbraham Academy, and from the Massachusetts Institute of Technology in 1902. He was a member of the American Society of Mechanical Engineers, the Illuminating Engineers Society and the Wellesley Congregational Church.

His wife; a son, Wendell K. Fitch, of Springfield, Mass., and a sister, Marietta N. Fitch, of Rockville, Conn., are living.

The funeral was held November 9 from his home, with burial in Rockville.

Brotherhood Organizes Montville

MONTVILLE, Conn. — The Robert Gair Co., a two-machine corrugated paper mill, has been organized under the International Brotherhood of Papermakers. Edward M. Moore of Holyoke, Mass., local representative, of the union, organized the plant.

WOODPULP AGENTS
PAPER EXPORTERS

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Wrapping Shortage Hits Washington

WASHINGTON, D. C. — Washington laundries are facing such critical shortage of wrapping paper that one concern is wrapping its bundles in Christmas paper and others predict they may have to return clean garments in cloth laundry bags, it was learned today. Spokesmen for a dozen laundries reported the paper shortage was worse now than at any time during the war. The average supply of any kind of paper on their shelves ranges from one to three weeks, they said. Department store managers, who met last week to discuss steps to get paper, said they were salvaging paper from their shipments in order to wrap packages.

One laundry owner said he didn't see how he could keep his laundry operating if he couldn't return clean laundry wrapped, but most of the laundries hoped to find some way to keep bundles clean after the paper now in stock is gone.

A spokesman for the R. P. Andrews Paper Co., which supplies paper to some of the laundries, said the company has had no wrapping paper in stock for six weeks and didn't expect any. He said paper was on order, but it had not been shipped and he didn't know when it would arrive.

George N. Walker, executive secretary of the Laundry-Dry Cleaning Owners' Association, said it appeared now that the laundries would run out of paper before a new supply could be obtained. He said he had checked with all the suppliers but without success. Laundries are using every scrap of paper they can find to get the bundles wrapped and some are even cutting up dry cleaning bags, he said.

The Ambassador Laundry has started using silver and white Christmas paper. The Morningside Laundry said it was stapling the ends of cardboard together as a wrapping for shirts instead of putting a separate covering of paper over them.

A Morningside official said he had procured a ten-day's supply of a white paper at 13.7 cents a pound as compared with wrapping paper previously bought at 6 cents a pound. He said he had sent a sample of some black paper at 18 cents a pound which he had to reject because the black came off on the laundry.

The Dupont Laundry said it had a month's supply of waxed paper which costs more and is impractical because it makes the bundles slippery. A Dupont official said he understood some of the laundries were lining baskets with newspapers, but this was impractical for wet wash because the ink comes off on the clothes.

The West End Laundry, which is also using waxed paper, reported that the latest information was that no more of even this paper is to be had.

The Elite Laundry, which averages twenty-five rolls of paper a week, said it had only a three-day supply.

The Palace Laundry said the paper it now is using is so thin "you can put your finger through it." Several of the laundries have been using white "butcher paper," but the Palace Laundry said it couldn't even get that.

Complaining that boxes were as hard to get as paper, a spokesman for the Tolman Laundry said:

"We're up against a blank wall. We're running out like everybody else. If we don't get some remedy, we're going to have to wrap bundles in newspapers."

Purchasing agents of department stores said they never worked harder and got scantier results. One large store ordered a 20-ton car of paper in October, 1945, another in November and a third in December, but has received no promise of a delivery date on any of them.

"The wrapping paper supply is tighter now than it was during the war," a store official said. He attributed it to the fact that paper manufacturers are converting the pulp normally used for ordinary brown wrapping paper into higher-priced book and magazine paper. He also predicted there would be no shortage of Christmas wrapping paper since it sells at a higher price.

One store that used sixty tons of paper a year before the war has had only ten tons since January 1.

All of the larger stores said they were salvaging all the boxes and corrugated paper that shipments arrived in and were using them for wrapping purposes.

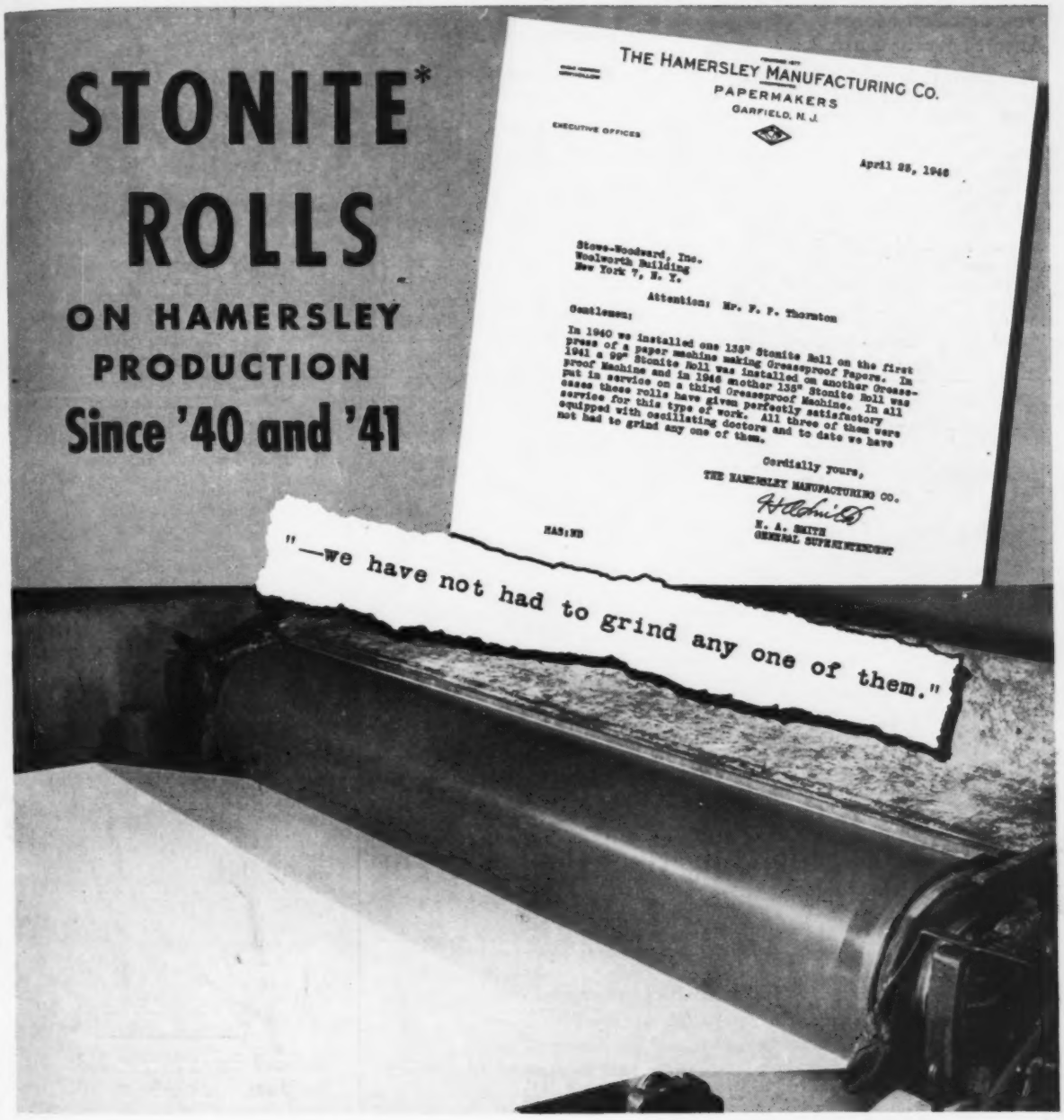
The only optimistic view of the shortage was taken by Paul D. Kerman, president of the District Grocery Stores, Inc., who said "the lack of paper has been one of our minor problems.

"Meat counters use most of the wrapping paper in a grocery store," he explained. "The lack of meat meant that a roll of paper, which usually lasted two days, has been lasting thirty days."

He said most stores had built up a backlog which should last for several days, but stated stores had only a fraction of their needs in paper bags and there was no sign of quick improvement in the supply.

U. S. Envelope Grants Ten-Percent Pay Boost

WORCESTER, Mass.—A ten per cent increase in wages effective November 4 for its three thousand employes, including the 950 employes in the Logan, Swift & Brigham, Whitcomb Envelope and Logan Drinking Cup division of Worcester has been announced by United States Envelope Co. The raise affects all workers, office as well as production. The company also has plants in Springfield, Los Angeles, Cal., Rockville and Hartford, Conn., Waukegan, Ill., Lititz, Penna., San Francisco, Cal., and Indianapolis, Ind.


STONITE*
ROLLS
ON HAMERSLEY
PRODUCTION
Since '40 and '41
THE HAMERSLEY MANUFACTURING CO.
PAPERMAKERS
GARFIELD, N. J.
EXECUTIVE OFFICES
April 28, 1946
Stowe-Woodward, Inc.
Woolworth Building
New York 7, N. Y.
Attention: Mr. F. P. Thornton
Gentlemen:
In 1940 we installed one 136" Stonite Roll on the first press of a paper machine making Greaseproof Papers. In 1941 a 99" Stonite Roll was installed on another Greaseproof Machine and in 1946 another 136" Stonite Roll was put in service on a third Greaseproof Machine. In all cases these rolls have given perfectly satisfactory service for this type of work. All three of them were equipped with oscillating doctors and to date we have not had to grind any one of them.
Cordially yours,
THE HAMERSLEY MANUFACTURING CO.
H. A. SMITH
GENERAL SUPERINTENDENT
HAS:HB
"—we have not had to grind any one of them."

NO grinding during five and six years of steady running! This letter from H. A. Smith, General Superintendent of The Hamersley Manufacturing Company of Garfield, N. J., is further evidence of the low maintenance cost of Stonite* Rolls.

Stonite's* hard, granite-like surface of fine-grained uniform texture has low adhesive qualities. This means quick release and fewer breaks—smooth performance on practically all grades of paper from tissue to board.

Stonite* Rolls are as easy to renew as a rubber roll, and as Stonite* is applied to a metal body, any roll of sufficient body weight can be converted into a Stonite* Roll simply by recovering it.

*Ebonite and Granulated Stone Composite U. S. Patent 1,787,890 Re. 18,111.

STOWE-WOODWARD
INCORPORATED
Craftsmen in Rubber
NEWTON UPPER FALLS 64, MASS.
New York Office, Woolworth Bldg., New York 7
Stowe-Woodward Rolls are made on the West Coast by Huntington Rubber Mills, Inc., Seattle 4, Washington.

New Link-Belt Motor Absorbs Power Surge

Link-Belt Company has made known the development of a hydraulic-coupled motor which is reported to deliver power to a driven unit with less vibration, starting strain and peak-load vibration than ordinary direct-coupled motors. It is now available in horsepowers up to twenty. Company engineers report that the drive shaft is encased in a fluid which absorbs shock originated either in the motor or the driven unit. Thus, the motor is not strained by a heavy starting load and the driven equipment will not be vibrated by a sudden surge of power from the motor. In effect, the fluid coupling serves as an automatic clutch which keeps the prime mover and the end machine on an even keel, according to the Link-Belt reports.

Sims Heat Recovery Products Described in New Booklet

ERIE, Pa.—A new booklet describing its two principal heat recovery products, the Sims Heat Exchanger and the Sims Exhaust Gas Fired boiler, has just been released by the Sims Company. Jacket cooling water for any internal combustion engine should not show a temperature difference between inlet and outlet greater than 20°. The Sims Exchanger is said to provide this protection to the engine. Sims installations reportedly prove the advantage of the closed system as the most effective as well as the most economical method of engine cooling.

The power economy resulting from the installation of an internal combustion engine can be increased by using the waste heat in the exhaust. The Sims Exhaust Gas Boiler has been designed for that service, making possible the recovery of a large percentage of the heat units otherwise lost to the atmosphere. A Sims Exhaust Gas Boiler reportedly wil convert this waste heat into hot water, steam or air for useful service. Booklet HR-2-9-46-5 M describing these products may be obtained by writing to P. O. Box 1096, care of the Sims Co., Erie, Pa.

R. S. Hunter Joins The Gardner Laboratory

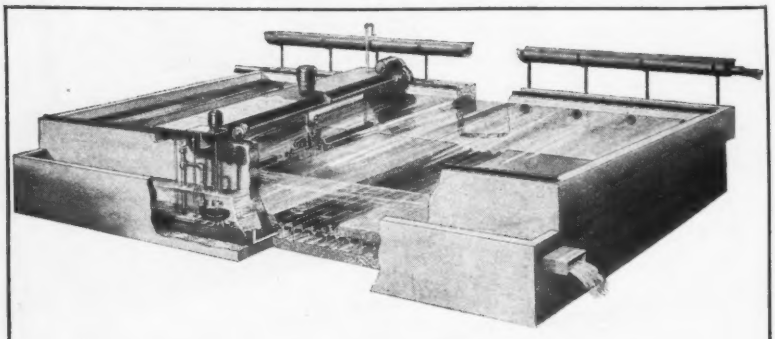
BETHESDA, Md.—Richard S. Hunter, formerly specialist in methods of color and gloss measurement at the National Bureau of Standards, has joined the Henry A. Gardner Laboratory, Inc. As chief optical engineer, he will develop apparatus and techniques for measuring gloss, reflectance, color turbidity, and other optical properties of materials. Mr. Hunter is a graduate of George Washington University.

At the Bureau of Standards, which he joined in 1927, he did important research on gloss, its recognition, description and measurement, on reflectometry, and on photoelectric tristimulus colorimetry. He developed a multipurpose photoelectric reflectometer which is widely used to measure the reflectance, color and gloss of reflecting materials. A number of other instruments of his design are applied to various special problems. As his contribution to the war effort, Mr. Hunter developed a simple device for aiming the flashes of sunlight from signaling mirrors used by downed aviators to attract the attention of possible rescuers.

Pennsalt Earns $1,790,863 For Year Ending Sept. 30

PHILADELPHIA — Consolidated net earnings after deduction of Federal taxes of the Pennsylvania Salt Manufacturing Company for the 12 months ending Sept. 30 were $1,790,863.77 or $2.39 per share on 750,000 shares of $10 par stock, Leonard T. Beale, President, reported after the annual meeting of shareholders October 23, in the Company offices. The net earnings for the same period ending Sept. 30, 1945, were $1,356,296.98, equivalent to $1.81 per share.

At the annual meeting, Leonard H. Kinnard, Charles G. Berwind and Richard T. Nalle, all of whom have been directors of the Company, were reelected for three-year terms. Alexander J. Cassatt, also a director of the Company, was elected to a one-year term.



when you modernize your plant
install a
HARDINGE Automatic Backwash FILTER

★

The *Hardinge Automatic Backwash Rapid Sand Filter* is particularly useful in handling waste water, excess white water, and processing of raw reservoir water. Fibre and filler may be recovered and reused, leaving water sufficiently free of suspended solids for reuse on showers.

RESULTS—Suspended solids removal averaging 97.4% was accomplished by a Hardinge Automatic Backwash Filter in the plant of the Newton Falls Paper Co., Newton Falls, N. Y.

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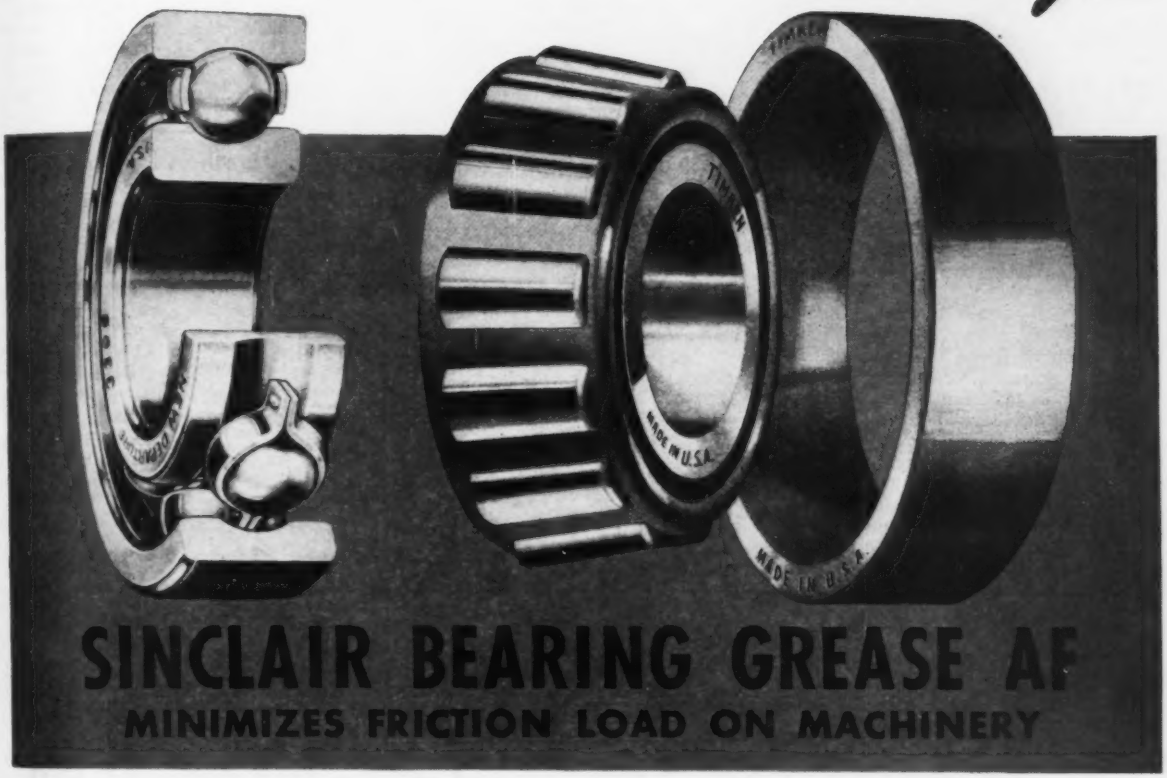
SAN FRANCISCO 5—501 Howard St. • 200 Bay St.—TORONTO 1

Anti-Friction Greases FOR Anti-Friction Bearings



SINCLAIR BEARING GREASE AF

MINIMIZES FRICTION LOAD ON MACHINERY

Anti-friction bearings not only act to minimize friction load on machinery; they serve long periods without lubrication and maintenance attention . . . *if the correct lubricant is used.*

For maximum serviceability of bearing and lubricant, special anti-friction bearing greases are required. Such a grease must be smooth...must keep a film of lubricant on balls or rollers and races... must not bleed or separate...must not thin out nor thicken in use.

Highly developed manufacturing techniques and high quality oils of correct body are used in making Sinclair BEARING GREASE AF. All ingredients are carefully selected and controlled to produce a lubricant of long endurance and stability through extended periods of continuous operation. Ask our engineers for specific advice.

SINCLAIR INDUSTRIAL OILS

FOR FULL INFORMATION OR LUBRICATION COUNSEL WRITE SINCLAIR REFINING COMPANY, 630 FIFTH AVENUE, NEW YORK 20, N. Y.

Hoosier Trade Sees Relief By Summer

INDIANAPOLIS — Paper production among companies serving Indiana continues at a high level and demand also continues heavy. However, there is some slight indication that given time, the mills may catch up with their orders, but this is not clearly foreseen at the present time. Many believe it will be next summer before any dent is made in the situation. The volume of production is so slightly above demand that it will take some time to make any impression on the vast backlog of orders.

In spite of all inducements, the factories are finding the labor situation continuing bad. There is a large turnover in labor and the common variety is a rare item. With living costs mounting, the factories likely will have to revise their wage standards upward, but thus far there have been no tieups in the plants.

Demand for kraft continued heavy last week. Wrapping paper and bags were much wanted and as the holiday season approaches, this demand will become more insistent. Demand for tissues was far beyond the supply. All sorts of tissues were short in this area and any store advertising them was bound to have a line awaiting the opening of doors in the morning.

Building paper and roofing also was in good demand, weather having been ideal for construction. Distributors report their stocks are rather depleted and they would have been in worse shape if other building material items were available and construction could proceed at top speed.

Newsprint demand was heavy last week and the publishers are hopeful that regardless of increased prices, they will be able to secure adequate tonnage. They are throwing away advertising every day because of lack of paper.

Little change was seen in the waste paper market. Collections here are fair with most stocks taken almost immediately. Rag demand also continued good with all prices strong.

Brown and Vincent on Polytechnic Program

NEW YORK — Vance P. Edwardes, superintendent of the International Paper Company at Palmer, N. Y., talked on sulphite pulping last week before the graduate course in Pulp and Paper Technology at Brooklyn Polytechnic Institute. H. H. Brown, Consulting Engineer will talk on the use of bagasse and other non-woody material for pulping and Rex Vincent from the Bulkley Dunton Pulp Company will talk on types of pulp available to the paper maker and their combinations, at meetings during November. The course meets on Thursday nights and is open to qualified men from industry.

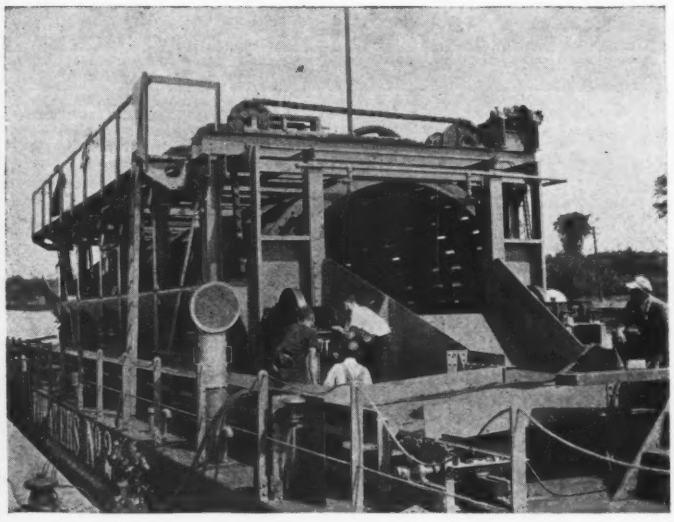
Javits, NPTA Counsel Goes to Congress

NEW YORK—Col. J. K. Javits, since 1932, counsel of the National Paper Trade Association, was elected to Congress last week representing the 21st District of New York City. He ran as a Republican and Liberal in a district which has gone Democratic for many years. Col. Javits is being warmly congratulated by the many friends in the trade with whom he has worked closely for a long period and whose confidence and regard he enjoys. There is general gratification that a man of his experience and acquaintance with the industry will have a seat in the House.

Lawless Brothers Incorporate Container Business

ROCHESTER, N. Y.—Incorporation of the Lawless Brothers Container Corporation to operate the business of the former Tonawanda Corrugated Box Company has been made known. The box company was purchased two months ago by the Lawless Brothers Paper Mills, Inc., of East Rochester.

The Tonawanda plant manufactures shipping containers, chiefly for concerns in the Niagara Frontier area. Directors of the new corporation, which will have principal offices in East Rochester, are David F. Lawless, Jr.; Matthew D., Michael J. and Vincent M. Lawless.



12′ x 45′
F.M.P. Barking Drum
On Barge

Complete with conveyors and Diesel engine drive, built for BOWATER'S NEWFOUNDLAND PULP AND PAPER MILLS LTD. and designed by FLETCHER SONS & CO., Naval Architects, Montreal.

FIBRE MAKING PROCESSES, Inc.

Russ Building, San Francisco 4 — Tribune Tower, Chicago 11

Canadian Representative

HORTON STEEL WORKS Ltd. — Fort Erie, Ont.

Don't miss the reading BETWEEN the lines!

Coated paper tells its own story in one word—quality. And the production of high-grade coated paper—at the speed demanded by modern industry—calls for a dependable Calcium Carbonate.

For several years Wyandotte Chemicals Corporation has made a *business* of producing Precipitated Calcium Carbonate. As a result of this experience, Wyandotte can offer you a proved, superior product.

Wyandotte Precipitated Calcium Carbonate is unequaled in brightness . . . in hiding power . . . in ink absorption . . . in freedom from grit and abrasiveness . . . in the uniformity essential to coating.

You'll find that Wyandotte Precipitated Calcium Carbonate meets your most exacting requirements.

Technical bulletins will be furnished upon request. Write for them today.

WYANDOTTE CHEMICALS CORPORATION • Michigan Alkali Division • Wyandotte, Michigan

Soda Ash • Caustic Soda • Bicarbonate of Soda • Calcium Carbonate
Calcium Chloride • Chlorine • Hydrogen • Sodium Zincates • Aromatic
Intermediates • Dry Ice • Other Organic and Inorganic Chemicals

Wyandotte
REG. U. S. PAT. OFF.

Maine-New Hampshire TAPPI at Portland

The Maine-New Hampshire Section of the Technical Association of the Pulp and Paper Industry met at the Eastland Hotel, Portland, Maine on November 8-9, 1946. E. L. Lamb of the Oxford Paper Company presided as general chairman. The local arrangements, entertainment and technical committees included: H. E. Pratt, Pejepscot Paper Company; W. V. Torrey, S. D. Warren Company; J. Fife Wright, National Aniline Div.; George Day, Brown Company; John L. Parsons, Hollingsworth & Whitney Company; and Roy P. Whitney, University of Maine.

The first session was called at 2 p.m. on Friday, November 8th by E. L. Lamb, who introduced Roy P. Whitney as program chairman. Mr. F. H. Frost, Chairman of the Commission Government of Portland, Maine, extended the official welcome to the city and stressed the responsibility of organizations like TAPPI to make possible the continuation and development of industry in Maine to assure future employment and prosperity.

R. A. Webber of the Brown Company, Berlin, N. H., gave informal comments on "Sulphite Pulping of Hardwoods." Mr. Webber pointed out that the availability of hardwoods in the Northeast is about the same as that of softwoods and should be extensively used. Their order of availability is birch, beech and maple. The pulpwood logs should be seasoned from three to nine months. They can be wet barked in drums and readily chipped. The chips tend to pack rather solidly. There is somewhat less lignin than in the softwoods. 1.1-1.2% combined SO_2 is satisfactory. For ordinary pulps a maximum temperature of 235°F is used; for specialty pulps 270°F producing a lower yield. Free SO_2 of 5.5-6.0 is used. The digesters are blown at high pressure. Hardwood pulp tends to contain more dirt than softwood pulp. Papers made with it have better printing properties than all-softwood pulp.

F. B. Lincoln, Jr., of Hollingsworth & Whitney Company discussed some of the new mill instrument controls and commended the Technical Association for establishing a Mill Instrument Control Committee which was much needed. He described some of the new Foxboro controlls and dwelt at length on the use of strain gages. To be successful the use of instrument controls in a mill should be under the supervision of a competent engineer, either chemical, electrical or mechanical. All instruments should be constantly calibrated and should give accurate information about what is happening in a process. The activities of the instrument companies in giving courses of instruction to mill men were described.

W. C. Bauer of the Massachusetts Institute of Technology discussed "Explosions in Chlorine Bleach Production." These occur in mills generating their own chlorines from cells. They are apparently caused by explosive gas mixtures present in the system. The pressure of hydrogen, in particular, can cause trouble. 2.2% or more of hydrogen in the mixture may cause an explosion. The danger can be minimized by keeping this percentage low by adding air, or defoaming agent to dilute the hydrogen. The explosions take place in the water tower.

J. S. Seiberlich of the University of New Hampshire talked on "Use of Wood and Pulp in Plastics." In this talk he indicated the pulp specifications required for conversion to plastics and also for loading plastics. He also described some new industries based on molding pulp screenings.

J. A. Warren of S. D. Warren gave an interesting description of the things that he saw during his recent visit to Sweden.

H. E. Pratt, Secretary, reported that the Section now has 196 members.

H. W. Osgood of S. D. Warren gave a demonstration of the new Warren spray coating experimental machine.

Following the dinner in the evening E. C. Jahn of the New York State College of Forestry gave an interesting talk on his observations in the Scandinavian countries during his sojourn there for the past few years. The shortage of fuel is the outstanding cause of such industrial production difficulties that exist. When this has been corrected the industry can be expected to make rapid progress due to the extent of and facilities of research developed during the war.

On Saturday morning George A. Day of the Brown Company presided as chairman and conducted a symposium of Stock Refining.

W. V. Torrey of S. D. Warren presented an interesting report on "The Evaluation and Classification of Pulps." This report represented considerable work over a long period by the speaker who showed a number of interesting charts.

W. Boyd Campbell of the Pulp and Paper Research Institute, Montreal, P. Q., presented a paper on "Academic Aspects of Stock Preparation." This paper will be published since its contents cannot be adequately summarized. It created great interest and could easily have been followed with a few hours discussion if time had been available.

Following the meeting many attended the football game at Brunswick, Maine, between the University of Maine and Bowdoin College.

Those present included: J. J. Aid, E. M. Archer, John P. Bainbridge, Jr., Stephen Barry, T. M. Barry, J. S. Baucker, W. C. Bauer, N. I. Bearce, Norber Bernheimer, James A. Boardman, Clayton Bockus, Worthen E. Brawn, Paul D. Bray, James G. Bullard, Kendrick Burns, W. F. Butcher, Robert D. Carter, R. E. Cleveland, Wm. E. Colbath, C. S. Collins, Joseph E. Connell, Lester W. Crouse, G. A. Day, James Dean, Robert A. DeMund, Jr., L. S. Dixon, F. P. Doane, Paul A. Donaghy, John Doughty, Charles Drummond, N. E. Dupee, Carl Von Ende, Richard W. Esterbrook, E. . Farrell, Richard French, F. H. Frost, Theodore H. Geiger, John B. Gooch, Donald M. Hall, Howard Hall, R. W. Hamilton, E. C. Hilton, Everett P. Ingalls, E. C. Jahn, Lyle Jenness, Roy N. Johnson, H. W. Johnston, Frank Kalilikis, R. E. Kilty, Warren S. Kumblad, E. L. Lamb, Ralph M. Leighton, Charles Lewis, L. F. Loutrel, Jr., R. G. Macdonald, J. D. Mahoney, K. W. Max, Geo. S. McKnight, D. H. McMutrice, J. C. Mooney, R. B. Morden, T. S. Morse, Newton L. Nourse, John J. O'Brien, F. W. O'Rourse, Donald M. Paris, John L. Parson, Chas. Pennings, Jr., H. A. Phillips, Noel R. Phillips, Harold E. Pratt, P. E. Prentiss, Henry Press, A. H. Rand, A. E. Regnier, F. J. Reynolds, Orville C. Sadler, Guy S. Sargent, E. E. Sawyer, Paul J. Shirley, Jr., Charles P. Slocum, James H. Snyder, W. D. Stroud, E. S. Sutermeister, J. J. Thomas, Wilfred V. Torrey, John Turbyne, H. J. Waldron, J. A. Warren, R. A. Webber, Edward Weber, F. L. Wellcome, Walter E. Wentworth, Frank A. Whitman, R. Cameron Whitney, Roy P. Whitney, Howard H. Whitten, S. V. Worthen, Jack Fife Wright.

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PAPER TRADE JOURNAL

Title Reg. U. S. Pat. Off.

W. L. Cook, Editor

Privilege, Perquisites, and Duty

The president of a large and old eastern university is reported to have amended a portion of its graduation ritual and to have added a thought of obligation to that of increment. "I admit you," the ancient formula for presenting a degree declared, "to all its rights and privileges." If the Prexie has not in fact changed this he may well have done so. He now is credited with, "I remind you of its duties and admit you to all its rights."

Somehow this seemed an appropriate summary of a talk that was made this week to the gentlemen of the Pensacola Rotary Club by Roy Ferguson who, with a party of officials of his company, had gone to that city to inspect the properties and mills there which have recently come under the St. Regis banner. In the course of a particularly happy address that did much to knit the interests of northern and southern paper men together, he declared that the South, with its favoring climate had been kind to trees, that men had used these gifts liberally, and that now the time has come to recognize a duty to help nature with an eye to the future benefits that will accrue again.

In a marvelously favoring climate trees mature in 15 to 20 years, he declared. But wherever nature was so prodigal of its gifts, the temptation arose to slash down all the trees in sight, knowing how soon more would grow?

Fortunately the modern, enlightened conception of forest management is putting an end to the ruthless exploitation of incomparable natural resources. Nowadays we are too smart for that. Pure self-interest, as well as the long-range needs of the national welfare, and the good of future generations which our pioneer settlers failed to bear in mind, now guides us in an era when forests have been so far depleted that we must take steps now to protect ourselves from lack of raw material for the paper industry. So scientific forest management is the order of the day. We practice selective cutting of trees, taking what we need and letting in the light and air that will keep the rest growing for hundreds of years in continuous, permanent cultivation.

By pursuing this policy of scientific conservation and utilization Mr. Ferguson showed, we shall be able to overcome the old feast or famine thinking about paper, which in turn was allied with a widespread public belief that the lumber and paper industry would destroy our forests.

That kind of thinking arose from a kind of boom or bust philosophy which governed the short-sighted, selfish destruction of America's natural wealth in a spirit of grab what you can today and forget about tomorrow. That is what happened in China, bringing floods and famine on a scale never approached elsewhere. Surely, it will not be approached in any degree in this prospering South of the twentieth century.

He added that an alert forceful expansion for the future must also spell the wisest kind of forest management, through which we may hope to preserve our wood supply in perpetuity. We must not eat into our forest capital; we must follow a policy of increment use of wood and not capital use of wood. Even though, on the one hand, new uses and expanding older uses constantly push up the demand for kraft paper and paper products, on the other hand long-range forest conservation sets up on automatic brake on those who would lay waste and despoil our forests. Thus, with enlightened forestry, Southern climate assures a perpetual supply of the raw material we need, always sufficient to meet the demand, while at the same time, the demand will grow steadily and progressively with the more productive forests. So we may confidently expect that balance of supply and demand, the ultimate goal of all sound business economy, will prevail not only in the South, but also throughout the vital paper industry, sixth in rank among all American industries.

The Government Seeks a Plan

A change in policy is indicated in news of the week that the Civilian Production Administration proposes to accept a suggestion from the industry that the Government's needs for paper be met by a voluntary percentage-of-production program whereby each mill would contribute to the stockpile. In the absence of any restrictive controls by which this end might be accomplished, it is proposed that, after a study shall determine the exact requirement, the supply be taken from the industry as a whole. It is estimated that between three and five per cent of production would be needed, whereas now some mills are giving up as much as ten percent of their production to the Government Printing Office. GPO has undertaken to review its specifications and to determine how far the more plentiful grades might be used instead of the harder-to-get kind.

Presumably the new order of things might also result in a uniformly fixed price at which the Government is willing to buy, and this would have to be set up in such a way that the Department of Justice could find in it no evidence of illegal collusion. Can CPA take care of that?

Calendar of Coming Events

February 23-27, 1947—The American Paper and Pulp Association, Annual Meeting, The Waldorf-Astoria, New York City.

New TAPPI Members

The Executive Committee of the Technical Association of the Pulp and Paper Industry has elected the following to membership:

Thea C. Bannister, Jr., Assistant Pulp Mill Superintendent, Hollingsworth & Whitney Co., Mobile, Alabama, a 1935 graduate of the University of Alabama. He was formely employed by the U. S. Gypsum Company, Greenville, Mississippi; the Monsanto Chemical Co., Anniston, Alabama; the Crossett Paper Mills, Inc., Crossett, Arkansas.

Adelbert W. Duskin, Assistant Technical Director, Crossett Paper Mills, Crossett, Arkansas, a 1934 graduate of the University of Arkansas. He was formerly employed by the Arkansas Highway Department, Little Rock, Arkansas, and altogether spent eight years in the United States Army.

Eric H. Ericson, Jr., Forest Supervisor, North Carolina Dept. of Conservation and Development, Bladen Lakes State Forest, Elizabethtown, North Carolina, a 1941 graduate of North Carolina State College. He was formerly employed by the Union Bag & Paper Corp., Savannah, Georgia; Alabama Extension Service, Monroeville, Alabama; the Wolverine Tube Division, Detroit, Michigan.

Louis E. Gates, Assistant Chief Chemist, Champion Paper & Fibre Co., Canton, North Carolina, a 1925 graduate of the Georgia School of Technology. He was previously employed by the Georgia School of Technology.

Winfield C. Hodgkins, Jr., Student, The Institute of Paper Chemistry, Appleton, Wisconsin, a 1942 graduate of the University of Maine.

Kenneth D. Running, Mill Superintendent, St. John Sulphite Ltd., Fairville, New Brunswick, Canada, a 1935 graduate of the University of Saskatchewan. He was formerly employed by the Anglo-Canadian Pulp and Paper Co., Quebec, P. Q.; the Gaspesia Sulphite Co., Chandler, P. Q.; Allied War Supplies, Montreal, P. Q.; and the Port Royal Pulp & Paper Co., Fairville, N. B., Canada.

Production Ratio Report*

(Production as per cent of six-day capacity)

COMPARATIVE WEEKLY SUMMARIES

Current Weeks—1946		Corresponding Weeks—1945	
September 28	106.6	September 29	98.1
October 5	107.2	October 6	94.1
October 12	105.9	October 13	96.2
October 19	105.1	October 20	96.5
October 26	106.8	October 27	95.8
November 2	*107.2*	November 3	97.5

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Year Avg.
1945	86.7	89.4	90.2	88.1	89.8	91.2	80.8	88.6	90.2	95.9	95.5	91.0	89.7
1946	94.7	98.4	104.4	102.7	100.7	104.6	94.0	104.7	101.3	*106.4*			

COMPARATIVE YEARLY SUMMARIES

	1939	1940	1941	1942	1943	1944	1945	1946
Year to Date	81.6	86.1	96.4	91.9	88.3	88.4	89.1	*101.2*
Year Average	83.4	85.6	97.4	90.4	87.8	88.1	89.7	

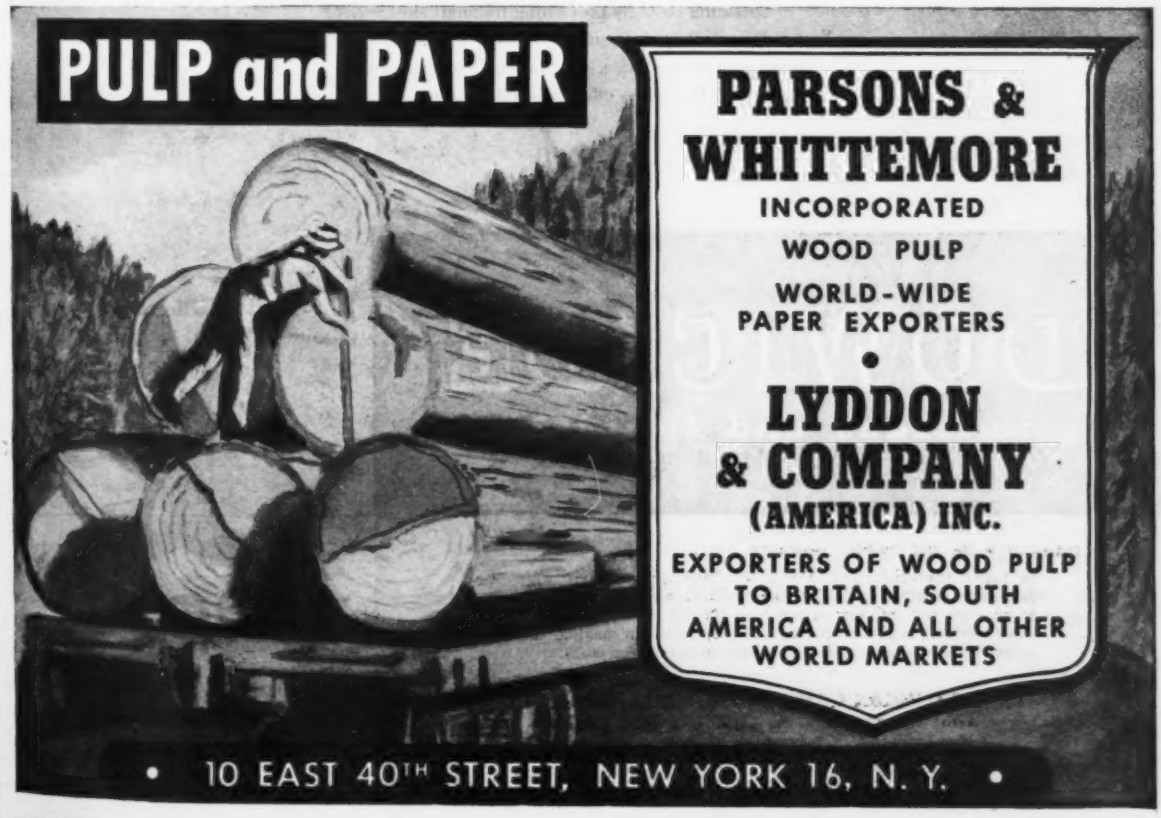
* Based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

PAPERBOARD OPERATING RATIOS†

Current Weeks—1946		Corresponding Weeks—1945	
September 28	101	September 29	96
October 5	100	October 6	95
October 12	99	October 13	97
October 19	98	October 20	96
October 26	101	October 28	98
November 2	*100*	November 3	97

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Year Avg.
1945	91	95	97	97	96	96	86	90	91	97	95	85	93
1946	90	97	100	99	94	97	89	99	96	*100*			

† Per cents of operation based on "Inch-Hours" reported to the National Paperboard Association.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Section of the
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OF THE PULP & PAPER INDUSTRY
122 E. 42nd St., New York 17, N. Y.
Edited by R. G. Macdonald, Secretary

Use of Bleached Aspen Semichemical Pulp In Groundwood Book Paper*

By John N. McGovern[1]

Abstract

The use of bleached aspen semichemical pulp to replace softwood sulphite pulp in a groundwood book paper for coating was investigated at the Forest Products Laboratory in experiments with test sheets, experimental paper machine runs, and mill-scale trials. The bleached semichemical pulp was made from neutral sulphite semichemical pulp by a chlorination-hypochlorite bleaching process. The bleached pulp yield was nearly 58% of the wood, the brightness value was about 74, and the beater-test strength characteristics equaled or exceeded those of a commercial bleached softwood sulphite pulp with the exception of a somewhat low tearing strength.

The physical properties of the pulp system, consisting of aspen groundwood and bleached aspen semichemical pulps, were obtained in test-sheet experiments. The effect on this system of the addition of bleached softwood sulphite, bleached aspen sulphate, or bleached aspen sulphite pulps was also determined.

In the papermaking trials on the Laboratory's experimental machine, a small increase in tearing strength was noted when, in an original aspen furnish of 45% bleached semichemical and 55% groundwood pulp, the proportion of semichemical pulp was reduced successively by the addition of 10, 20, and 25% of bleached softwood sulphite pulp. The substitution of 10 and 20% of bleached aspen sulphite or bleached aspen sulphate pulps had little effect on paper strength.

In the mill papermaking trials, the regular mill furnish of 47% of a mixture of bleached and unbleached softwood sulphite pulp and 53% aspen groundwood pulp was changed to one consisting of 35% bleached aspen semichemical, 15% bleached softwood sulphite, and 50% aspen groundwood pulp. This high aspen content furnish was run with slight difficulty in a short papermaking trial, the paper was machine-coated and supercalendered without trouble, and the finished paper was successfully printed and used in an issue of a popular magazine. An all-aspen furnish of 50% bleached semichemical and 50% groundwood pulp was run with considerable difficulty, although the coated paper obtained approached standard paper in strength properties and printing quality. The pulps of high aspen content tended to be slow and sticky and to have low wet-web strength.

Aspen *(Populus tremuloides)*, more familiarly known as poplar or popple, is a hardwood which appears for the most part to be best utilized as pulpwood. This species occupies more area of forest lands in the Lake States region than any other species. Ten million cords of high-quality aspen pulpwood have been estimated as being available in this region alone *(1)*. At present the growth of aspen exceeds the drain.

A small amount of aspen pulp has been used as a filler stock for a long time. Other uses have been developed slowly and, as a result, the consumption of aspen as pulpwood grew from 3,000 cords in 1920 to 364,000 cords in 1944. Approximately half of this increase occurred between 1939 and 1944 when many mills supplemented their wartime supplies of more-favored, but scarcer, species with aspen. A part of this gain in usage is expected to be retained in the future because some of the mills have discovered that aspen pulps have certain properties advantageous for their products. Nevertheless, for the highest benefit of Lake States and northeastern forests, consumption of aspen will need to be maintained at wartime or even higher levels.

Aspen can be pulped more or less successfully by any of the standard processes. Aspen soda, sulphate, sulphite, and groundwood pulps have been used successfully in many mills. The uses of aspen pulps are, however, limited because of their generally low strengths, particularly tearing strength.

Recent developments have indicated that fully bleached hardwood pulp having many good characteristics can be produced by removing one-fourth to one-half of the lignin in the wood by means of neutral sulphite semichemical pulping *(5)*, careful fiber-

* Presented at the Annual Meeting of the Technical Association of the Pulp & Paper Industry, Hotel Commodore, New York, N. Y., Feb. 25-28, 1946.

[1] Member TAPPI; Technologist, Forest Products Laboratory,[2] Forest Service, U. S. Department of Agriculture.

[2] Maintained at Madison, Wis., in cooperation with the University of Wisconsin.

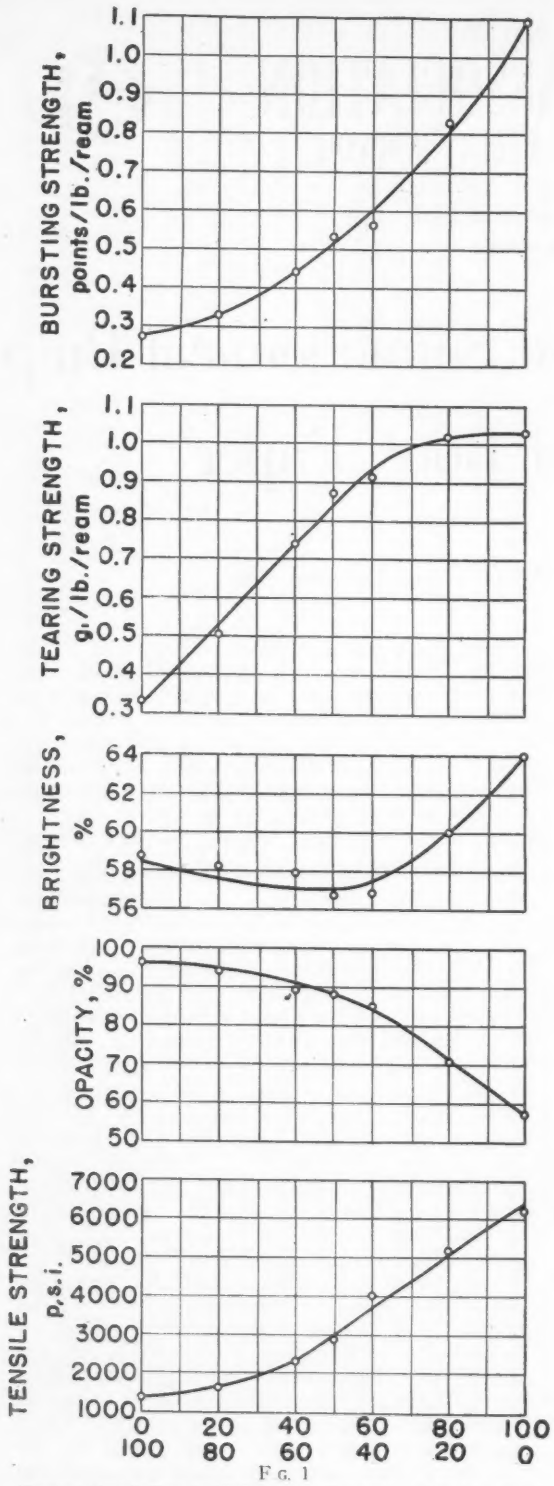

FIG. 1

Physical Test Indices for Pulp System Consisting of Various Proportions of Aspen Groundwood and Bleached Aspen Semichemical Pulp

izing of the semicooked chips, and complete removal of the lignin by a conventional chlorine-hypochlorite bleaching procedure. This scheme of producing a bleached semichemical pulp is not new *(6)*. The bleached hardwood pulps produced in this way are obtained in high yields, and their properties indicate the possibility of uses other than as a filler pulp. Aspen, because of its high cellulose and low lignin content and its ready pulpability, appears to be especially suited for this process. Possible outlets for bleached aspen semichemical pulps, as indicated by mill-scale trials, are in groundwood book paper *(3)* and glassine paper *(2)*.

In this report are described the results of experiments and trials in which (a) the characteristics of the two-pulp system of bleached aspen semichemical and aspen groundwood pulp and of the three-pulp system composed of these two pulps plus a chemical pulp (bleached softwood sulphite, bleached aspen sulphate, or bleached aspen sulphite pulp) were determined in test-sheet experiments; (b) the properties of aspen groundwood-bleached aspen semichemical book papers with or without small proportions of chemical pulp were determined in experimental paper machine runs; and (c) the feasibility of the use of bleached aspen semichemical pulp in an aspen groundwood book paper for coating was determined in a mill-scale trial. The results of the mill-scale trial have been reported briefly elsewhere *(3, 2)*.

Experimental Data

Preparation of the Pulps

The bleached aspen semichemical pulp was prepared experimentally at the Forest Products Laboratory in 50-pound batches and on a pilot-plant scale at a commercial mill. The conditions for the experimental production were as follows:

The aspen chips were steamed for 0.5 hours at 5 to 10 p.s.i. steam pressure. The steamed chips were impregnated at 120° C. for 1 hour with a liquor having a concentration of 65 grams of sodium sulphite and 25 grams of sodium bicarbonate per liter. The unabsorbed liquor was then blown from the digester. The chemical absorbed amounted to 11.6% sodium sulphite and 7.6% sodium bicarbonate based on the weight of the moisture-free wood. The impregnated chips were cooked at 170° C. for 1.25 hours. The semicooked chips, after being fiberized in a disk refiner, yielded 75% of pulp by weight. The pulp was bleached in a two-stage chlorination-hypochlorite procedure using a total of approximately 18% chlorine. The bleaching conditions for the experimental pulp identified in Table I as bleach No. 786 comprised a low-density chlorination stage with 17% chlorine followed by a low-density hypochlorite stage with 1.3% chlorine as calcium hypochlorite at 35° C. The yield of bleached pulp was about 58%, based on the weight of the wood.

A total of approximately 18 tons of bleached aspen semichemical pulp was produced in the pilot-plant run. The general conditions used were essentially the same as those used in the experimental runs. Somewhat more sodium sulphite was used for cooking, 14% compared with 11.6%, and the cooking time was 1 hour longer. The semichemical pulp was bleached in a commercial system in which the total amount of chlorine used was approximately 17%, using about 14% chlorine in a low-density chlorination stage followed by a high-density hypochlorite stage with about 3% chlorine as calcium hypochlorite at about 35° C. The unbleached and bleached pulp yields were about the same as those obtained experimentally.

The aspen groundwood pulp used in the experiments was a standard commercial pulp used regularly in the manufacture of book paper for coating. The bleached softwood (hemlock and spruce) and aspen sulphite pulps used in the various experiments like-

wise were regular commercial products. The bleached aspen sulphate pulp was produced experimentally at the Forest Products Laboratory.

Test-sheet Experiments

Test sheets weighting approximately 30 pounds per ream (25×40 - 500) were made on the 7- by 9-inch Forest Products Laboratory sheet mold. The bleached aspen semichemical and groundwood pulps, and the bleached hemlock sulphite pulp were used unprocessed. The bleached aspen sulphate and sulphite pulps were processed in a test beater to a Schopper-Riegler freeness value of 550 ml. before use in the test-sheet furnishes. Series of test sheets were made up with systematically varied proportions of (a) the aspen groundwood pulp and the semichemical pulp or one of the chemical pulps, and (b) of the groundwod pulp, the semichemical pulp, and one of the chemical pulps.

In one of the experiments, test sheets were made from a complete book paper furnish consisting of three combinations of the aspen groundwood, aspen semichemical pulp used were 25, 35, and 50% of clay, 0.75% plasticized size, and 0.75% alum; the pulp slurry was adjusted to a pH of 4.5 with sulphuric acid.

Experimental Paper Machine Trials

The trial paper machine runs were made on the Laboratory's experimental fourdrinier-type machine *(4)*. The machine was run at a speed of 80 feet per minute. The pulp furnishes used in the various machine runs included the basic one of 55% aspen groundwood and 45% bleached aspen semichemical pulp and others in which (a) 10, 20, and 25% of the semichemical pulp was replaced by corresponding amounts of bleached softwood sulphite and (b) 10 and 20% of semichemical was replaced with corresponding amounts of bleached aspen sulphate or bleached aspen sulphite pulp. The nonfibrous portion of the stock included, by weight, 8% clay, 0.75% plasticized size, and 0.75% alum; the pH value of the stock was adjusted to 4.5 with sulphuric acid. The stock was given a light jordaning in most instances.

Mill-scale Papermaking Trials

The mill-scale trials were made on a commercial fourdrinier-type machine which was run at 750 feet per minute, produced a trimmed sheet 120 inches wide, and was equipped with a coater. In these trials, a "standard" furnish consisting of 50% aspen groundwood and 50% bleached softwood sulphite pulp was run for comparison. This pulp furnish closely resembled the mill's regularly used furnish of 53% aspen groundwood and 47% bleached or unbleached softwood sulphite. The runs were made by substituting the bleached aspen semichemical pulp for part or all of the softwood sulphite pulp in the standard pulp furnish. The various proportions of semichemical, and softwood sulphite pulps plus 8%

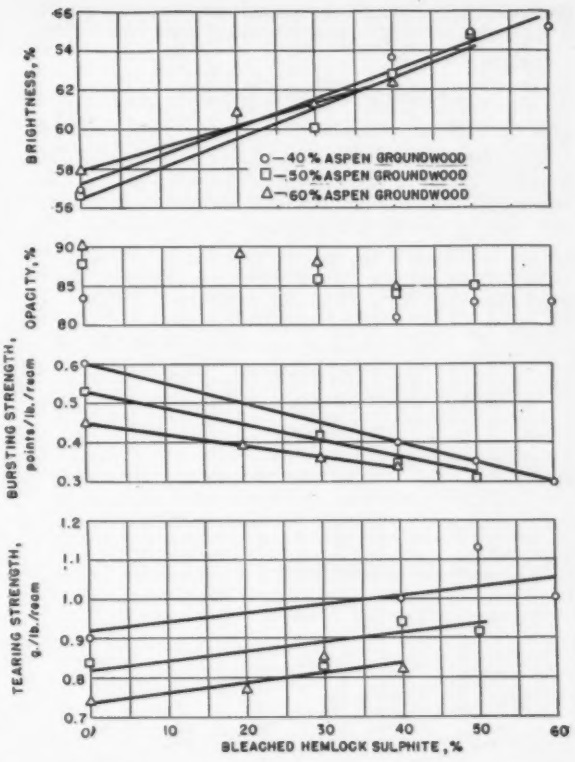

Fig. 2

Effect of Substitution of Bleached Softwood Sulphite for Bleached Aspen Semichemical Pulp on Properties of Pulp System Consisting of Aspen Groundwood and Bleached Aspen Semichemical Pulp. The Amounts of Semichemical Pulp in the Furnishes are the Differences Between 100% and the Sum of Percentages of Groundwood and Sulphite Pulps Indicated for the Curves.

TABLE I.—PROPERTIES OF PULPS[1]

Kind of Pulp	Beating Time, min.	Freeness (Schopper-Riegler), ml.	Properties of Pulps: Bursting Strength,[2] pt./lb./ream	Tearing Strength,[2] g./lb./ream	Tensile Strength, lb./in. of width	Folding Endurance, No. of double folds	Brightness, %
Bleached aspen semichemical pulps:							
Experimental pulp (bleach No. 786)	0	680	1.21	1.28	33.9	626	72.5
	5	650	1.25	1.20	35.0	680	
	32	500	1.50	0.95	40.0	870	
	68	300	1.57	0.75	47.5	1,100	
Pilot-plant pulp (Shipments Nos. 2238 and 2272)	0	685	1.01	1.20	32.8	255	71.7
	10	650	1.08	1.02	33.5	300	
	35	500	1.25	0.92	39.5	525	
	75	300	1.38	0.88	46.0	750	
Bleached aspen sulphate pulp (bleach No. 833)	0	835	0.42	0.85	14.4	7	73.2
	85	650	0.99	0.93	30.0	200	
	135	500	1.03	0.83	34.0	325	
	200	300	1.11	0.75	37.0	400	
Bleached aspen sulphite pulp (Shipment No. 2205)	0	825	0.23	0.53	9.4	2	71.8
	60	650	0.35	0.44	14.0	3	
	100	500	0.40	0.39	16.5	4	
	140	300	0.46	0.33	17.7	5	
Bleached softwood sulphite pulp (Shipment No. 2231)	0	830	0.43	1.76	11.4	49	71.4
	21	650	0.85	0.83	27.0	450	
	33	500	0.95	0.55	32.5	550	
	46	300	1.02	0.50	34.5	650	
Aspen groundwood pulp (Shipment No. 2230)	0	282	0.23	0.45	19.9	....	59.3

[1] Values at zero beating time were obtained from tests on unprocessed pulp. All other values are interpolated from beater test curves.
[2] Ream size 25×40—500.

the total pulp furnish. A special run was made with a furnish of 60% spruce groundwood and 40% semichemical pulp.

Discussion and Results

Comparison of the Pulps

The physical test values in Table I show that the bleached aspen semichemical pulp was equal to or better than the commercial bleached softwood sulphite pulp, except for its low unprocessed tearing strength and low unprocessed freeness value. These deficiencies are, of course, important in products such as groundwood papers, where the inherent slowness and low tearing strength of groundwood pulps need compensation. Faster-draining semichemical pulps may be possible through improvements in fiberizing the partly cooked chips.

The bleached aspen sulphate pulp also compared favorably with the softwood sulphite pulp (Table I) except in tearing strength of the unprocessed pulp. The bleached aspen sulphite pulp, on the other hand, was definitely inferior to the other chemical and semichemical pulps in all strength properties.

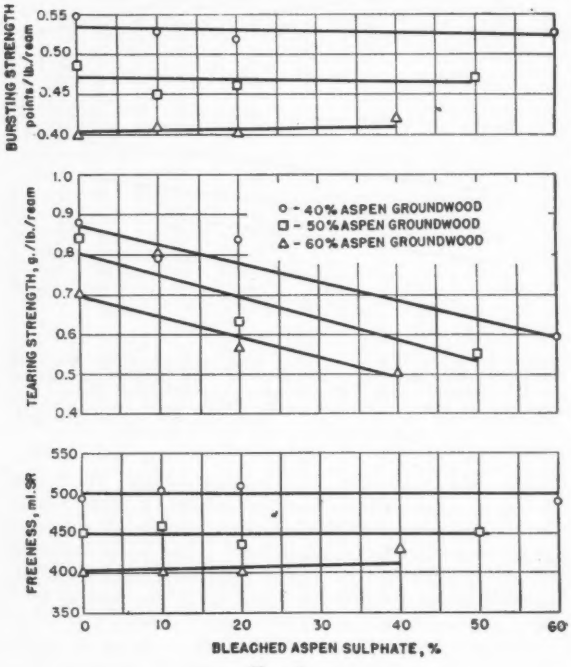

FIG. 3

Effect of Substitution of Bleached Aspen Sulphate Pulp for Bleached Aspen Semichemical Pulp on Properties of Pulp System Consisting of Aspen Groundwood and Bleached Aspen Semichemical Pulp. The Amounts of Semichemical Pulp in the Furnishes are the Differences Between 100% and the Sum of the Percentages of Groundwood and Sulphate Pulps Indicated for the Curves.

Test-sheet Experiments

The physical test values for the binary pulp system of aspen groundwood and bleached aspen semichemical pulp varied regularly, but not necessarily linearly, as the proportion of semichemical pulp in the mixture was increased. The various physical test relations are show in Fig. 1. The relatively strong influence of the groundwood pulp on bursting strength, opacity, and brightness and that of the semichemical pulp on tearing strength is of interest. These general relations are of basic importance with respect to the properties of papers containing considerable proportions of these two pulps.

The effects on the physical test values obtained by substituting certain chemical pulps for the bleached semichemical pulp of the basic pulp system depended on the properties of the semichemical pulp in relation to those of the chemical pulps. The net effect is shown by the curves in Figs. 2, 3, and 4. When the bleached softwood (hemlock) sulphite pulp was substituted for the semichemical pulp (Fig. 2) the effect on tearing strength of the long-fiber pulp was beneficial. The decrease in bursting strength with increase in long-fiber pulp content was caused by, of course, the lower bursting strength of the unprocessed long-fiber pulp.

When bleached aspen sulphate was substituted for the semichemical pulp, the tearing strength of the resulting mixture was affected adversely because the tearing strength of the processed sulphate pulp was lower than that of the unprocessed semichemical pulp, as shown in Fig. 3. Other physical test values were relatively unaffected. When bleached aspen sulphite pulp was substituted for the semichemical pulp, both tearing and bursting strength values decreased in the ternary mixture as would be expected on the basis of the low strength of the aspen sulphite pulp. This is shown in Fig. 4. These experiments indicate that the bleached aspen pulps made by the pulping methods in most common use are, in general, less advantageous than the bleached semichemical pulp when mixed with aspen groundwood pulp.

The effect of varying percentages of the groundwood pulp constituent on the physical values of the test sheets is also shown in Figs. 2, 3, and 4. The bursting and tearing strengths and freeness values all

TABLE II.—EFFECT OF SEVERAL PULP FURNISHES FOR BOOK PAPER ON FREENESS AND TEST-SHEET STRENGTH

Experiment No.	Pulp Furnish [1]			Freeness of Book Paper Furnish		Strength Properties						
						Bursting Strength		Tearing Strength		Tensile Strength		
	Aspen Groundwood, %	Bleached Aspen Semichemical, %	Bleached Softwood Sulphite, %	Experimental Determination (Schopper-Riegler), ml.	Calculated from Pulps [2] (Schopper-Riegler), ml.	Experimental Determination, pt./lb./ream	Calculated from Pulps,[2] pt./lb./ream	Experimental Determination, g./lb./ream	Calculated from Pulps,[2] g./lb./ream	Experimental Determination, p.s.i.	Calculated from Pulps,[2] p.s.i.	Ash Content, %
1	50	50	0	440	495	0.37	0.60	0.48	0.75	1,380	4,150	3.8
2	50	25	25	485	535	0.28	0.44	0.57	0.80	844	2,640	2.5
3	50	0	50	550	575	0.28	0.29	0.79	0.84	586	1,120	2.4

[1] Each furnish also montained 8% clay, 0.75% plasticized size and 0.75% alum based on total fiber. The pulp slurry was adjusted to pH 4.5 with sulphuric acid before forming the test sheets.

[2] Calculated from the properties and proportions of the pulps used. The difference between these values and the experimentally determined values indicates the effect of adding filler and size.

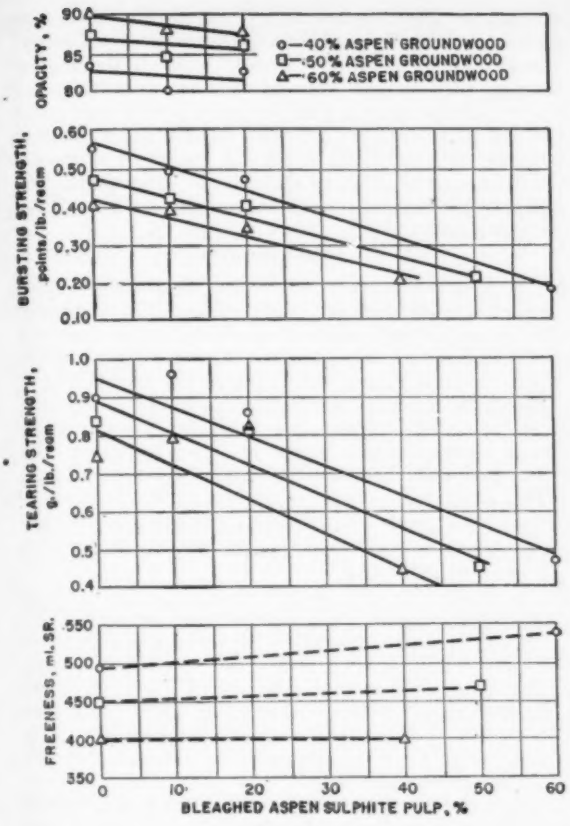

FIG. 4

Effect of Substitution of Bleached Aspen Sulphite Pulp for Bleached Aspen Semichemical Pulp on Properties of Pulp System Consisting of Aspen Groundwood and Bleached Aspen Semichemical Pulp. The Amounts of Semichemical Pulp in the Furnishes are the Differnces Between 100% and the Sum of the Percentages of Groundwood and Sulphite Pulp Indicated for the Curves.

decrease with increase in groundwood pulp percentage. The opacity of the test sheets, on the other hand, increases with the addition of groundwood pulp to the furnish.

The test-sheet experiments, in which a complete book paper furnish, including the filler and size, was used, indicated that the freeness of the stock and the strength of the test sheets were affected by the nonfibrous constituents of the furnish. The properties of the unfilled and unsized sheets were calculated from the properties and proportions of the pulps used in the furnish. The data are given in Table II. The freeness values were 25 to 50 ml. less than those calculated from the values for the individual pulps. The strength values of the all-aspen test sheets containing the filler and size were considerably lower than those calculated from the pulps. The sheets from the 50-50 groundwood and softwood pulp furnish were affected, on the contrary, to only a small extent. This difference is due partly to a higher retention of filler by the all-aspen pulp mixture but, in addition, the nonfibrous material apparently had a greater effect on the fiber bonds in the short-fiber pulps than on the bonds in the long-fiber pulps.

Experimental Paper Machine Trials

The goal and standard in the papermaking experiments was a commercial book paper suitable for coating. The pulps used in its manufacture were aspen groundwood pulp (55%) and a mixture of bleached and unbleached long-fiber sulphite pulps (45%). The results of physical tests on this paper are given in Table III for run No. P-2145.

When all the softwood sulphite pulp in the book paper was replaced with bleached aspen semichemical pulp to give an all-aspen pulp furnish (run No. 2649, Table III), the experimental paper measured up to the commercial standard in all respects except tearing strength. This experimental paper was roughly 25% lower in tearing strength than the standard. Since the manufacturers of the commercial paper considered the tearing strength of their sheet to be a minimum for satisfactory operation, the deficiency indicated by the experimental paper could possibly be a drawback if the full substitution were carried through in commercial operation. Replacement with semichemical pulp of lesser amounts of the softwood sulphite pulp resulted in proportionate increases in the tearing strength of the experimental papers (runs Nos. 2720, 2710, 2568-9, Table III). The low tearing strength of the sheet with 20% semichemical pulp (run No. 2710) appears for some reason to be out of line with the general trend.

The attempts to obtain satisfactory paper properties with an all-aspen pulp furnish by using small proportions of either bleached aspen sulphate or bleached sulphite pulp to replace the semichemical pulp were not successful. The use of 10 and 20% of the sulphate pulp (runs Nos. 2647 and 2648, Table III) and like percentages of the sulphite pulp (runs Nos. 2576 and 2575) had little or no effect on paper properties. Apparently the low bursting strength of the aspen sulphite pulp did not affect this property in the paper because of the relatively small amounts used. It is possible, however, that commercial paper machine operation might be improved by using small proportions of aspen sulphate or sulphite pulps because of their relatively high freeness values.

TABLE III.—PROPERTIES OF PAPERS MADE ON EXPERIMENTAL PAPER MACHINE

Run No.	Pulp Furnish: Bleached Aspen Semichemical, %	Aspen Groundwood, %	Bleached Softwood Sulphite, %	Bleached Aspen Sulphate, %	Bleached Aspen Sulphite, %	Jordaning	Ream Weight 25×40—500, lb.	Caliper, mils.	Density, g./cc.	Bursting Strength, pt./lb./ream	Tearing Strength, g./lb./ream	Tensile Strength, p.s.i.	Penetration, sec.	Size No.	Opacity, %	Brightness, %	Ash Content, %
P-2145	..	55	45	..	..	.....	32.8	2.74	0.66	0.26	0.65	2,125	36.0	0.6	90	58.0	8.6
2649	45	55	..	..	..	Light	33.2	2.40	0.76	0.24	0.50	2,372	36.8	0.9	91	62.2	.. ..
2720	35	55	10	..	..	None	34.3	2.69	0.71	0.24	0.60	2,713	...	0.75	92	59.3	.. ..
2710	25	55	20	..	..	Light	32.4	2.35	0.76	0.26	0.47	2,720	37.0	0.7	89	58.6	.. ..
2568-9	20	55	25	..	..	Light	33.9	2.71	0.72	0.25	0.65	2,510	5.5	0.75	90	60.6	7.6
2647	35	55	..	10	..	Light	33.3	2.48	0.74	0.22	0.44	2,142	27.8	0.6	92	63.0	.. ..
2648	25	55	..	20	..	Light	31.9	2.41	0.73	0.22	0.46	2,285	23.7	0.9	92	63.0	.. ..
2576	35	55	..	..	10	Light	36.6	2.72	0.74	0.25	0.55	2,515	6.8	0.7	91	57.4	7.5
2575	25	55	..	..	20	Light	37.9	2.91	0.71	0.24	0.50	2,419	7.6	0.9	92	59.4	7.5

All the experimental paper machine runs were made without difficulty.

Mill-scale Experiments

The runs on the experimental paper machine indicated that 100% aspen furnishes could be made into book paper without difficulty. In longer runs on the faster commercial machine, however, slow draining on the paper-machine wire, low wet-web strength, and sticking at the presses showed up when bleached aspen semichemical pulp was used as a substitute for softwood sulphite pulp. Mill tests on the stock after passing through the jordans showed that freeness values and tearing strength were 20% lower when all the softwood sulphite pulp in a 50-50 aspen groundwood-softwood sulphite pulp furnish was replaced with semichemical pulp. Nevertheless, some paper was produced from the all-aspen furnish, as shown by run No. 5 in Table IV, even though the difficult operation would make it virtually impossible to run commercially according to present practice. On the other hand, fairly satisfactory operation was obtained in run No. 3 with 85% aspen pulp, which included 35% of semichemical pulp. Means of reducing the tendency of this pulp to drain slowly and to stick at the presses have not yet been developed, however. A few scout experiments have indicated that some of the trouble might be overcome by using an aspen groundwood pulp with more suitable drainage characteristics than the type used at present.

The physical test values of the uncoated papers were affected by the pulp furnish, as shown in Table IV. As expected from the pulp tests, the tearing strengths of the papers were particularly affected by the use of the semichemical pulp. Substitution of this pulp for all the softwood sulphite pulp resulted in a 25% drop in tearing strength. Other properties were not greatly affected. The paper made with 60% spruce groundwood and 40% semichemical pulp was low enough in tearing strength to cause trouble from breaks during winding and supercalendering.

The coating and supercalendering operations had a marked upgrading effect on the strength and printing quality of the various coated papers made with bleached aspen semichemical pulp. Physical tests made at the mill on all the experimental coated papers proved them to be on the same level as the regular paper. Two or more rolls of each experimental paper were submitted to a publisher and printed according to the practice used with the regular paper supplied by the mill and used in regular issues of a popular magazine. The printing qualities of the experimental papers are understood to have matched those of the regular paper.

Conclusions

1. Bleached aspen semichemical pulp produced experimentally and on a pilot-plant scale was found to be equal or superior to a certain commercial bleached softwood (hemlock and spruce) sulphite pulp in test-beater strength values, except for a somewhat lower tearing strength.

2. An all-aspen book paper was made successfully on an experimental paper machine by using 45% bleached semichemical and 55% groundwood pulp. This paper had properties equivalent to a commercial sheet made from 45% bleached softwood sulphite and 55% aspen groundwood pulp except for a somewhat lower tearing strength.

3. A pulp furnish composed of 35% bleached aspen semichemical, 15% bleached softwood sulphite, and 50% aspen groundwood was run with slight difficulty into a book paper for coating in a mill-scale papermaking trial. The coated paper was equal in strength properties and printing quality to a commercial book paper made from a pulp furnish of 47% bleached and unbleached softwood sulphite and 53% aspen groundwood pulp.

4. Furnishes containing over 50% of aspen groundwood and semichemical pulps in combinations tend to be slow-draining and sticky and to have low wet-web strength on the paper machine.

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TABLE IV.—PULP FURNISHES AND OBSERVATIONS ON MILL-SCALE PAPER MACHINE OPERATIONS AND PHYSICAL TESTS ON PAPER

Run No.	Shipment No.	Kind of Run	Pulp Furnishes: Bleached Aspen Semi-chemical, %	Pulp Furnishes: Aspen Ground-wood, %	Pulp Furnishes: Bleached Softwood Sulphite, %	Remarks on Paper Machine Operation	Ream Weight 25×40—500, lb.	Caliper, mils.	Density, g. per cc.	Bursting Strength, pt./lb./ream	Tearing Strength, g./lb./ream	Tensile Strength, p.s.i.	Penetration, sec.	Size No.	Opacity, %	Brightness, %
..	2145	Regular	..	53	[1]47	Regular operation.	32.8	2.74	0.66	0.26	0.65	2,125	36	0.6	90	58
1	2283	Standard for mill-scale trials	..	50	50	Operation same as with regular furnish.	39.7	2.70	0.81	0.22	0.69	2,078	16	0.6	92	60.8
2	....	Mill-scale trial	25	50	25	Fairly satisfactory operation in 2-hour run.	...	...	...	...	...	....	..	..	..	...
3	2284	Mill-scale trial	35	50	15	Some sticking at presses, but run satisfactorily for 3 hours. Considerable trouble with sticking on continued running.	32.8	2.97	0.61	0.24	0.59	2,021	40	0.5	94	60
4	2285	Mill-scale trial	40	[2]60	..	Satisfactory operation on 4-hour run, but numerous breaks during winding and supercalendering.	40.0	2.91	0.76	0.27	0.40	2,665	26	0.7	91	62.5
5	2286	Mill-scale trial	50	50	..	Some paper obtained but with numerous breaks due to sticking at presses; drainage very slow on paper machine wire.	39.4	2.69	0.81	0.24	0.52	2,121	23	0.7	89	63

[1] Contains some unbleached softwood sulphite pulp.
[2] Spruce groundwood pulp.

Tall Oil in Printing Inks*

By C. J. Vander Valk[1] and H. Burrell[1]

Abstract

Some of the desirable characteristics brought out in the earlier paper on the polypentaerythritol modified tall oil varnishes should prove very advantageous in the printing ink field.

The process of manufacture is reviewed briefly. This includes studies of the maleic adduct formation and the esterification of the resulting products with polypentaerythritols.

This product from tall oil is considered in printing inks as a gloss promoter, bodying and tackifying agent, penetration retardant, and hardening agent. It was found to compare very favorably in gloss with alkyd and modified phenolic resins.

Viscosity data are presented for several typical printing ink vehicles including combinations with vegetable oils and mineral oil.

Inks formulated with this product showed excellent stability and nonskinning properties over a period of several months. This property coupled with good drying indicate its usefulness as a minor or major part of ink vehicles.

Although its color makes its use in white printing inks impractical, it does not seriously hinder its use in light colored inks.

The decorating inks were tested for hardness and abrasion resistance. The films containing the polypentaerythritol-tall oil product proved equal in this category to films containing higher priced conventional alkyd resins.

The interdependency of the paper and graphic arts industries is obvious and well known. It is the purpose of this paper to indicate and discuss the application of another product of the paper industry in printing inks; namely tall oil, an important and much discussed byproduct of the kraft industry.

Many attempts have been made to modify the characteristics of tall oil with the aim of making a product more suitable to varnish making. Most of this work has been and still is directed toward the reduction of the resins acids contents. It has however been found feasible to prepare varnishes from a crude tall oil by the use of polypentaerythritols which compare favorably in many respects to good quality resins and varnishes produced from conventional and more costly ingredients. The manufacture and properties of these tall oil products have been discussed in detail in a previous paper by the authors *(1)*. Some of the characteristics mentioned therein can be applied advantageously in the printing ink field.

Pentaerythritol Alcohols

Before entering upon a discussion of the manufacture and specific application of these tall oil products, a consideration of the pentaerythritol alcohols is in order.

Pentaerythritol is a misnamed polyhydric alcohol prepared by the reaction of formaldehyde and acetaldehyde. The pentaerythritol molecule consists of 4 methylol (CH_2OH) groups closely packed about a quartenary central carbon atom and can be correctly termed tetra methylol methane. In spite of the high content of hydroxyl groups, because of the close atomic packing and its resulting crystalline structure, pentaerythritol is soluble in water only to the extent of 8 grams in 100 at room temperature. This insensitivity to water carries over into the esters of the high molecular weight acids thus rendering the coating compositions containing them highly resistant to moisture.

The ether polymers of pentaerythritol, namely dipentaerythritol and tripentaerythritol (*see* Fig. 1), known collectively as polypentaerythritols, are even less soluble in water than the parent compound. Because of the greater number of hydroxyl groups on the ether molecules, the unsaturated acid esters are more polyfunctional and therefore body, gel, and dry more rapidly than the pentaerythritol esters. Another consequence of the large number of primary hydroxyls is the statistical increase in probability of cross linking even those molecules formed by esterifying mixed acids containing only minor proportions of unsaturated radicals; this results in satisfactory drying properties in esters of acids which occur in slow-, semi-, or non-drying glyceride oils. These characteristics are also illustrated by the properties obtainable in the esters of tall oil.

In order to simplify reference to the reaction products of polypentaerythritols and tall oils, the named "Talp" was coined containing the first three letters of tall oil and the letter "p" to designate polypentaerythritol.

Maleic Modifications

Although useful varnishes can be prepared by the esterification of unmodified tall oil with polypentaerythritols, it was found expedient to react small but critical amounts of maleic anhydride with the tall oil prior to esterfication with the polyhydric alcohols. The maleic anhydride probably reacts with the resin acid phase of the tall oil according to the Diels-Alder mechanism. A maximum content of 4.5% of the tall oil was determined for optimum properties in a dipentaerythritol ester and 3.5% with Polypentek. (A technical mixture of approximately equal parts of di- and tri- pentaerythritols.)

The rapidity of the reaction of maleic anhydride and "whole" tall oil can be seen in Table I. These data indicate that essentially all of the maleic anhydride is reacted on heating the oil and maleic to 390° F. (200°C.). To insure complete reaction of the maleic adduct in the laboratory the reaction mass was held at 480°F. (250°C.) up to 1 hour.

Esterfication

The maleic adducts of tall oil can be easily esterified at temperatures ranging from 482 (250°C.) to 570°F. (300°C.). The most practical temperature was found to be 530°F. (275°C.).

The amount of polyhydric alcohol necessary for the

TABLE I

Time Elapsed, min.	Temperature, ° F.	Maleic Anhydride Reacted, %
20	212	39.0
33	230	74.0
52	390	98.4
71	480	98.5
88	570	99.3

* Presented at the Annual Meeting of the Technical Association of the Pulp & Paper Industry, Hotel Commodore, New York, N. Y., Feb. 25-28, 1946.

[1] Heyden Chemical Corp., Garfield, N. Y.

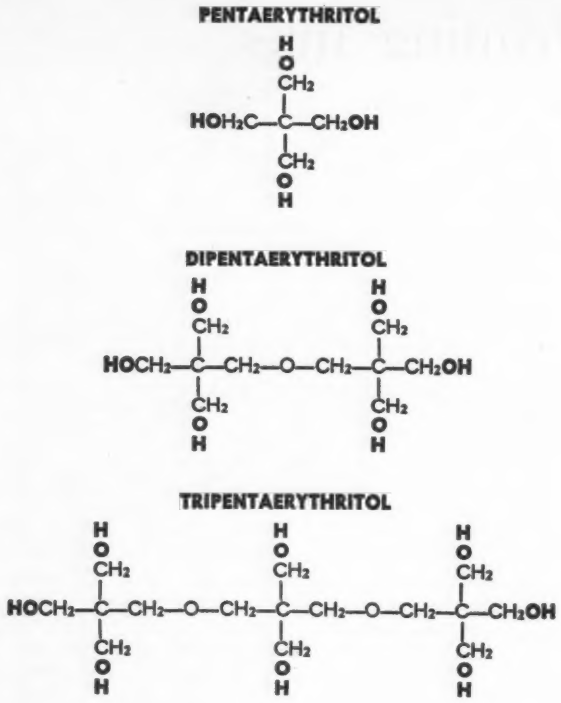


FIG. 1

essentially complete esterification of the maleic adduct of the tall oil can be calculated on the sum total of the equivalents of free acids present. An excess of polypentaerythritol up to 5% over the stoichimoetric requirements tends to speed up esterification without adverse effect upon the film properties of the product.

After the esterification has proceeded to an acid number of about 15 it was found advisable to hold the batch at 530°F. (280°C.) for an hour or so to improve the drying properties and increase the viscosity or body.

The application of the preceeding proportions and procedures can be demonstrated by the description of a typical production run of a polypentek ester of maleic modified tall oil.

Undistilled tall oil, lb.	1050
Maleic anhydride, lb.	37
Polypentek, lb.	194

The tall oil and maleic anhydride were charged into a 200 gallon, gas fired, stainless steel kettle equipped with a 20 inch turbine type agitator operating at 74 r.p.m., condenser, receiver and bottom outlet. The furnace setting was equipped with centrifugal blower for cooling.

The mixture was heated with good agitation to 150°C. in 2 hours and held at 150°C. for 1 hour to form the maleic adduct. The polypentek was then added and the temperature increased to 275°C. in 2 hours. The charge was cooked at 275°C. for 8 hours, cooled with the help of the blower to 150°C. and discharged into suitable containers.

The preparation of the maleic adduct and the subsequent esterification are best carried out in a closed kettle connected to a source of inert gas such as carbon dioxide. The use of an inert, azeotropic, high boiling petroleum naphtha has also been found practical in the preparation of the tall oil product. As in all pentaterythritol esterifications, good agitation is of prime importance. The pentaerythritols are insoluble

TABLE II

Sample Number	Acid No.	Ash, %	Sterols, %	Fatty Acids, %	Resin Acids, %	Iodine Value	Varnish (50% Solids) Dust Free, hr.*	Tack Free, hr.*	Viscosity, poises	Color** (Gardner)
1	162	0.20	7.4	38.0	55.0	152	¼	4½	1.30	16
2	158	0.20	8.4	41.0	51.0	147	¼	4½	1.00	17
3	157	0.10	8.0	41.0	51.0	152	¼	4½	1.33	16
4	165	0.16	8.8	45.4	45.8	146	¼	5	0.50	13
5	165	0.19	6.5	53.1	40.4	143	¼	5½	0.22	16

* Henry A. Gardner, Physical and Chemical Examination. Paints, Varnishes, Lacquers, and Colors, 9th Ed., Chap. 10.
** Henry A. Gardner, Physical and Chemical Examination. Paints, Varnishes, Lacquers, and Colors, 9th Ed., Chap. 5.

in the oily reactants and tend to settle to the bottom of the reaction vessel due to their high specific gravities.

Tall Oil Composition

The presence of the resin acids in the tall oils was found to be essential to the production of a fast air drying product. The crude tall oils or decolorized "crude" or "whole" tall oils were found to be most satisfactory for the manufacture of the tall oil varnish.

To illustrate the effect of variation in tall oil composition on the properties of the esters of the maleic adducts five samples of crude tall oils of various compositions were each reacted with 4.5% of their weight of maleic anhydride and esterified with dipentaterythritol. The importance of a high resin acid content to produce rapid tack free drying and high viscosities is brought out in Table II.

Application of Tall Oil in Printing Inks

A dipentaerythritol ester of a 4.5% maleic adduct of decolorized crude tall oil was examined as a possible ingredient of printing inks. Because heat bodied linseed oils or lithographic varnishes are the most widely used vehicles in inks drying in part or entirely by oxidation, these were blended with the product made with tall oil in most of the inks tested.

The tall oil product used in this work was of 12 gallon oil length and possessed the following general properties:

Refractive index	$N_D^{25°} = 1.5155$
Gardner color	16
Acid value	12-15
Consistency	extremely tacky with a viscosity of several thousand poises.

Compatibility and Pigment Reactivity

The ester is compatible with all materials commonly used in the preparation of oil base printing inks. These include other resinous materials, oils and varnishes, special compounds, antioxidants and driers.

The stability of inks containing it was found to be good. No livering or undue polymerization was observed after several months storage. In fact it seems to function as an antiskinning agent in many cases. This antioxidant effect is discussed further in the section on drying.

Inks tested for ageing characteristics contained the following pigments: carbon black, milori blue, peacock blue, red lake C, toluidine red, chrome yellows, hansa yellow, titanium pigments, zinc oxide, aluminum hydroxide, and magnesium carbonate.

Pastes containing each of the above pigments or extenders in vehicles composed of 33% of the tall oil ester and 67% lithographic varnish (No. 1) and the usual concentration of driers showed little tendency to form skins or liver after 6 to 8 months storage in tin cans. The viscosity stability of ink

TABLE III

Ink	Vehicle Composition: Oil	%	Resin	%	Condition After: 15 min.	30 min.
A	Litho. varnish No. 1	50	Modified phenolic	50	very tacky	dry
B	Litho. varnish No. 1	67	Oxidizing alkyd	33	slightly tacky	dry
C	Litho. varnish No. 1	50	Tall oil product	50	wet	dry
D	Litho. varnish No. 1	67	Tall oil product	33	**wet**	**dry**

formulations containing the tall oil varnish is further illustrated in Fig. 2. This consists of plots of consistency against time on highly alkaline magnesium carbonate dispersions in lithographic varnish and in lithographic varnish blended with the tall oil product.

Consistency Characteristics

The extreme viscosity and high tack make impractical its use as the sole vehicle in printing inks. Relatively low viscosity drying oils or hydrocarbon thinners must be used to obtain practical consistencies in ink formulations.

The viscosities of various ratios of the tall oil product and oils were measured and are plotted in Fig. 3. A bodied linseed oil and a light mineral oil were chosen as blending agents, being two typical vehicles finding wide use in the ink industry.

These graphs indicate this product compares favorably with commercial alkyds and modified phenolic resins as bodying agents.

Drying and Baking

Tests have shown cobalt and manganese naphthenates in combination as the most satisfactory siccatives in tall oil varnish films.

The addition to inks drying by oxidation and absorption resulted in a somewhat increased rate of drying. Because of the penetration retardant action of the tall oil ester, these inks tended to dry less by absorption and more by oxidation and polymerization when applied to absorbent paper stocks.

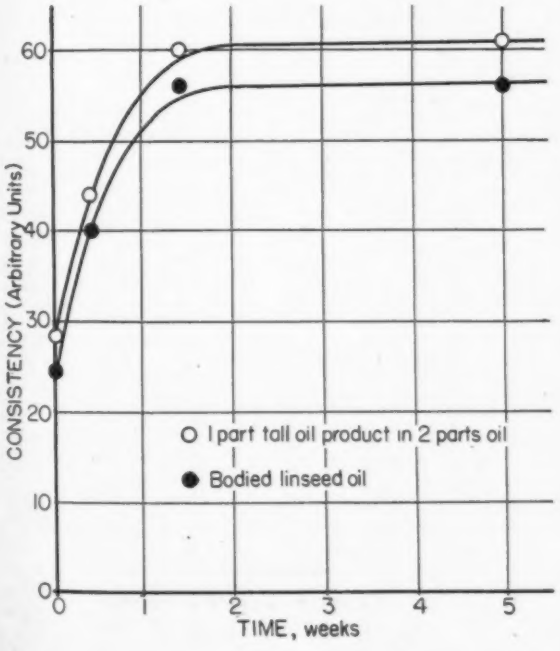


FIG. 2
Consistency on Ageing

Experiments with typical tin decorating inks proved that it is a reasonably satisfactory replacement for glyceryl phthalate alkyds in baking inks. With the exception of inks containing large amounts of carbon black, films of practical thickness baked well at 220°F. Inks containing large amounts of carbon black required a baking temperature of 300°F. (150°C.) or higher.

The baking properties of these inks and inks containing more conventional resins are compared in Table III. The pigment phase of these inks was composed chiefly of iron blue and each vehicle contained a drier combination consisting of 0.60% cobalt and 1.20% manganese naphthenates.

The contents of this table indicate that vehicles containing tall oil stay open longer than those containing alkyds or phenolics and then set up rapidly. This characteristic combined with the nonskinning properties of these vehicles should prove advantageous to the ink formulator.

Gloss Promoter

As might be predicted from its high refractive index the tall oil product rivals alkyds and phenolic resins as a gloss promoter both on paper and metal. Printing inks formulated in lithographic varnish were found to have better gloss than those made with the traditional lithographic varnish as the sole vehicle.

The above statements are based on visual observation as well as results obtained with the Hunter Reflectometer. An idea of its effectiveness as a gloss promoter can be derived from the reflectance readings taken at a near grazing angle (75°) with the Hunter Multipurpose Reflectometer on white inks on bond paper and tin plate as listed in Table IV. The increase in gloss of the inks on the bond paper is especially significant when the matte finish of the bond paper base is considered.

Color

An obvious drawback of tall oil varnish in inks is its dark color. Attempts to lighten this color by the use of surface adsorbents were unsuccessful.

Although the initial color of the tall oil product is dark, it does not increase in color appreciably on ageing either in bulk or in the films.

In regard to discoloration at baking temperatures it compares very favorably with commercial alkyd and modified phenolic resins. This is shown in Table V containing the Hunter yellowness ratios of white ink films containing tall oil and other resins.

TABLE V

Resin	Yellowness After Baking at 250° F.: 5 min.	10 min.	20 min.	30 min.
Tall oil product	6.5	8.9	8.9	13.5
Glyceryl phthalate alkyd No. 1	4.1	11.2	16.3	16.3
Glyceryl phthalate alkyd No. 2	3.2	6.9	6.9	13.8
Modified phenolic resin	4.3	5.8	11.7	...

Although the inherent dark color makes it use in white printing inks impractical, it did not prove to be a serious hindrance in light colored and tinted inks.

Hardness and Abrasion Resistance

Printing inks containing tall oil were compared with inks containing other vehicles for hardness and abrasion resistance. Inks fortified with the ester

TABLE IV

Vehicle	Supporting Base	75° Specular Gloss, % Reflectance
Litho. varnish with tall oil product	Tin	10.0
Litho varnish	Tin	3.8
Litho. varnish with tall oil product	Bond paper	5.6
Litho varnish	Bond paper	3.6

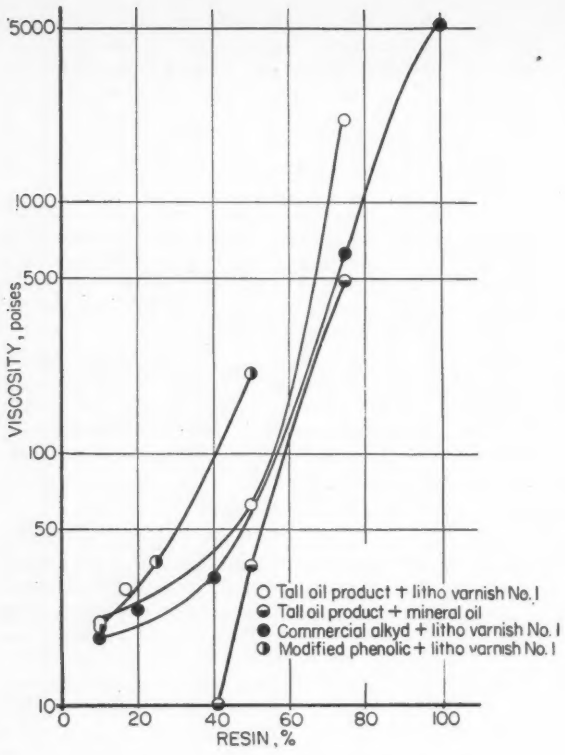


FIG. 3
Viscosity Curves of Oil Blends

TABLE VI

Vehicle Composition	Sward Hardness * Glass = 100
Bodied linseed oil and tall oil product	12.4
Lithographic varnish No. 1	7.0
Burnt lithographic varnish No. 1	10.6
Bodied linseed oil and glyceryl phthalate alkyd No. 1	12.4
Bodied linseed oil and glyceryl phthalate alkyd No. 2	15.8
Modified phenolic varnish, 37½ gallon	19.3

* National Paint, Varnish and Lacquer Association, Scientific Circular No. 510 (Aug., 1936).

proved slightly harder than those made with unmodified lithographic varnish, about equal hardness to inks made with commercial alkyds but considerably softer than those made with a modified phenolic varnish. The relative hardnesses by the Sward method for various ink vehicles are included in Table VI. These values are based on a value of 100 for plate glass.

Table VII contains comparative abrasion values for ink vehicles containing tall oil and more conventional materials. Examination of these data indicate that it does not impart added abrasion resistance to ink films but actually has a deleterious effect on this property, probably due to the embrittlement of the films with the increased hardness. The tall oil vehicle is a close match for the phenolic vehicle in this category.

SUMMARY

Among the properties of interest to the printing ink formulator are the good drying properties, high viscosity and tack, and exceptional gloss. Since the tall oil product contains a relatively small proportion of costly modifying agents and is best prepared from the cheap unprocessed tall oils it should also prove attractive to the formulators of the lower cost inks.

TABLE VII

Ink Vehicle Composition	Abraser Cycles * per mil.
Bodied linseed oil and tall oil product	250
Modified phenolic varnish, 37½ gallon	250
Burnt lithographic varnish No. 1	400
Bodied linseed oil and glyceryl phthalate Alkyd No. 2	650

* Cycles with a Taber abraser.

Literature Cited

1. *Paint, Oil & Chem. Rev.*, Vol. 107, 25, 14-20, 30 (1944).

Delaware Valley Section Discusses Japanese Papermaking

The regular monthly meeting of the Delaware Valley Section of The Technical Association of the Pulp and Paper Industry was held at the Engineer's Club in Philadelphia on Friday evening November 1st. The Westinghouse Electric Company's representatives C. H. Rice and C. R. Shultz acted as social hosts during the dinner hour. A West Coast visitor, V. L. Tipka of Portland, Ore., was introduced.

John Macadam of the National Vulcanized Fibre Company, Chairman of the Section, presided over the business meeting where reports were given by the following: Geo. Suydam (Riegel Paper Corp.) for the auditing committee and E. J. Albert (Thwing-Albert Instrument Co.) for the by-laws committee.

The meeting was then turned over to John Weidner of Container Corporation, the chairman of the program committee who announced plans under way for future meetings—discussions on paper mill screens, labor relations, and cellulose chemistry, with several open dates to be filled through suggestions from our membership.

The Program Chairman then introduced the speaker for the evening—Mr. C. G. Weber, Acting Chief of Paper Section, Bureau of Standards who announced that his discussion of hand papermaking in Japan would be informal and inviting questions at any point in the discussion. The audience took full advantage of this invitation and it was difficult to adjourn the meeting. The group was particularly interested in the many slides of various paper making fibres in various stages of preparation.

Those present at the diner were:

E. J. Albert
A. L. M. Bixler
Alan R. Boyd
Don Bradner
H. C. Brill
S. G. Briscoe
C. L. Brickman
Philip G. Bruno
J. W. Burke
John Carson
J. C. Dieffenderfer
W. P. Dohne
Richard C. Durham
N. V. Edmonson
P. C. Evanoff
J. S. Evans
J. M. Farnum
Maurice L. Gallagher
H. L. Geer
Fred W. Goetz
J. F. Good
R. E. Green
E. A. Hanna
L. V. Hans
S. T. Jamison
Alfred H. Jones
Harry C. Kinne
L. T. Kratz
S. J. Leishman
Geo. Lord
Daniel J. Lorden
J. Macadam
A. L. Mayer
Alex McInnes
Roy P. Nelson
I. Newman
L. M. Nicol
C. W. Rivise
C. H. Rice
John Roslund
Allan Schenck
Chas. A. Shubert
C. R. Shultz
H. H. Street
Jos. J. Swift
Geo. M. Suydam
James S. Tipka
V. L. Tipka
T. W. Toovey
Roy Underdown
A. E. Waugh
C. G. Webber
John Weidner
R. J. Welday
R. R. Wiggins

Empire TAPPI Meet

The Western New York Group of the TAPPI Empire State Section gathered at 6:45 p.m. November 13th at the Prospect House, Niagara Falls, N. Y.

United States Patents on Papermaking

Third Quarter, 1946

Compiled by Clarence J. West, Chairman, Committee on Abstracts and Bibliography

The following list of patents has been compiled from the current numbers of the Official Gazette of the United States Patent Office. Because, as a rule, only one claim is published in the Gazette, it is not claimed that the list is complete; also, it is possible that the list may contain some patents that do not apply specifically to pulp and paper manufacture.

Copies of any of the following patents may be obtained from the United States Patent Office, Washington, D. C., by sending twenty-five cents for each patent desired. The change in price of individual patents from ten to twenty-five cents became effective on July 5, 1946.

July 2, 1946

2,402,943. Container. Boris Bogoslowsky, Jackson Heights, N. Y. Filed Nov. 21, 1942. 1 claim. (Cl. 229-5.5). A seamless cup-shaped body having a substantially flat bottom portion and pleated side walls, the upper section of the walls being reversely folded, and a closure.

2,402,944. Container. Henry E. Braloff, Rockville Centre, N. Y. Filed Jan. 12, 1944. 9 claims. (Cl. 229-41). A fibrous container with a wall in the annular member adapted to function as a closure for the container.

2,402,966. Process of producing variegated pressed fiberboard. Harry K. Linzell, assignor to United States Gypsum Company, Chicago, Ill. Filed July 11, 1942. 3 claims. (Cl. 92-38). A method of adding metal salts to a suspension of vegetable fibers in an acidic aqueous solution to form a variegated surface.

2,402,986. Coating apparatus. Thomas G. Cunning, assignor to Brogdex Company, Pomona, Calif. Filed Dec. 11, 1942. 13 claims. (Cl. 91-43). An apparatus for reducing solid waxy or other coating material to comminuted form suitable for coating articles.

2,403,018. Manufacture of abrasives. Nicholas E. Oglesby, assignor to Behr-Manning Corporation, Troy, N. Y. Filed March 3, 1933. 10 claims. (Cl. 117-26). Abrasive grains are added to an adhesively coated backing sheet in an atmosphere charged with the vapor of a solvent for the adhesive.

2,403,047. Carton or container. Kenneth T. Buttery, assignor to Southerland Paper Company, Kalamazoo, Mich. Filed Sept. 29, 1944. 6 claims. (Cl. 229-43). The carton comprises front, rear, and end walls and a sealing flap overlapping one of the end walls and adhesively secured thereto, with inner closure members extending from the ends of the rear wall.

2,403,131. Laminated container closure. William A. Smith, assignor to F. N. Burt Company, Inc., Buffalo, N. Y. Filed Aug. 10, 1942. 5 claims. (Cl. 215-44). A method of making a laminated closure structure.

2,403,138. Pouring carton and blank. John J. Sullivan, Arlington, Mass., assignor of one half to Lawrie L. Witter, Boston, Mass. Filed June 21, 1944. 8 claims. (Cl. 229-17).

2,403,287. Closure. William J. Keith, assignor to Keith-Peabody, Inc., Brookline, Mass. Filed Aug. 3, 1942. 3 claims. (Cl: 215-43). A closure for a container formed of fibrous sheet material.

2,403,377. Scoring roll. Daniel E. Kelley, assignor to Gaw-O'Hara Envelop Company, Chicago, Ill. Filed Sept. 4, 1944. 8 claims. (Cl. 93-58.1).

July 9, 1946

2,403,461. Method and apparatus for producing designed papers. Edward W. Samson, assignor to Hammermill Paper Company, Erie, Pa. Filed Nov. 1, 1940. 23 claims. (Cl. 8-7). A method of producing a two-tone design on paper by subjecting the paper to a combined pressing and rubbing action at selected points and subsequently applying dye to the surface of the paper.

2,403,697. Plasticizing of glassine papers. Herbert B. Wenberg, De Pere, Wis. Filed June 4, 1943. 14 claims. (Cl. 8-116.2). A plasticizer consists of the addition compound of urea with a water-soluble nitrate (molal ratio approximately 3:1).

2,403,698. Hinged cover container, Marshall I. Williamson and Herman A. Carruth, assignors to National Folding Box Company, New Haven, Conn. Filed June 13, 1944. 10 claims. (Cl. 229-4.4).

2,403,756. Sewed bag closure. Robert E. Read, assignor to Union Bag & Paper Corporation, New York, N. Y. Filed Feb. 1, 1943. 6 claims. (Cl. 229-62). A method of closing a paper bag.

2,403,827. Method of and apparatus for producing a head in response to the consistency of papermaking stocks. Ernest Poirier, Waterville, Maine. Filed Sept. 9, 1942. 11 claims. (Cl. 137-78). A method of creating a high degree of internal friction throughout the cross-sectional area of a portion of the length of a confined portion of the stream of papermaking stock and thus influencing the rate of flow of the stock.

2,403,855. Container closure and method of closing containers. Frank Gilbert, Jr., Olmsted Falls, Ohio. Filed July 10, 1942. 4 claims. (Cl. 229-3.1). A stamped paper cap.

July 16, 1946

2,403,901. Polygonal separable section container. Albert P. D. Belanger, Alton, Ill. Filed Jan. 7, 1944. 3 claims. (Cl. 229-27). A container which can be separated into six sections.

2,403,964. Surface coating for packaging polymers. John H. Bannon and Harvey N. Mims, assignors to Standard Oil Development Company, Linden, N. J. Filed Dec. 9, 1942. 3 claims. (Cl. 260-23). A liquid coating for containers contains a copolymer of an iso-olefin and a diolefin, petroleum wax, zinc stearate, and a petroleum naphtha.

2,403,994. Spraying machine. Horace J. Paynter, assignor to American Can Company, New York, N. Y. Filed June 19, 1944. 10 claims. (Cl. 91-45). A machine for spraying a coating material on the interior of an irregular shaped tubular can body.

2,403,995. Method of making fiber container bodies. John F. Peters, assignor to American Can Company, New York, N. Y. Filed Dec. 8, 1943. 2 claims. (Cl. 93-94). Method of producing tubular fiber container bodies having marginal edge portions embodied in an adhesively secured side seam.

2,404,065. Controlled ventilated container. Irving Hill, assignor to The Lawrence Paper Company, Lawrence, Kans. Filed Dec. 31 1943. 2 claims. (Cl. 229-42). An egg case, the end walls of which have ventilation openings.

2,404,067. Container and closure therefor. Justin D. Hill, assignor to The Lawrence Paper Company, Lawrence, Kans. Filed Dec. 31, 1943. 6 claims. (Cl. 229-45).

2,404,337. Bag closure means and method. Russell J. Williams and Harold C. Davis, assignors to Bemis Bros. Bag Company, St. Louis, Mo. Filed April 13, 1944. 9 claims. (Cl. 229-62).

July 23, 1946

2,404,606. Method and machine for burnishing the surface of paper. Arthur R. Trist, London, W. 1, England. Filed Dec. 30, 1942. 8 claims. (Cl. 92-68). Paper is passed at a rate of 700 to 1000 feet per minute between a resilient bed and a comparatively rigid blade having a thickness at its edge of 0.001 to 0.006 inch.

2,404,655. Machine for felling trees. Arthur W. Randall, Saugus, Mass. Filed March 4, 1944. 1 claim. (Cl. 143-43). A circular saw operatively positioned on a motor vehicle.

2,404,704. Compartmented fiberboard egg case. Reynolds Guyer, assignor to Waldorf Paper Products Company, St. Paul, Minn. Filed April 29, 1943. 15 claims. (Cl. 229-15).

July 30, 1946

2,404,840. Resins made with lignin and heat reactive condensation products and method for preparing the same. Mortimer T. Harvey, South Orange, N. J., assignor to Harvel Research Corporation. Filed May 6, 1943. 2 claims. (Cl. 260-17.5). A mixture of lignin and a thermosetting heat-reactive acid condensation product of formaldehyde and a material selected from the group consisting of furfuryl alcohol and a fusible acid condensation product of furfuryl alcohol is heated.

2,404,916. Box. Reginald B. Meller, Oakland, Calif. Filed Oct. 24, 1944. 3 claims. (Cl. 229-35). A box having a self-locking corner.

2,404,946. Papermaking machine press section. Everett W. Clem, assignor to Rice Barton Corporation, Worcester, Mass. Filed Dec. 3, 1943. 6 claims. (Cl. 92-49). A press roll assembly.

August 6, 1946

2,405,138. Apparatus for breaking foam. Louis E. Gates, assignor to The Champion Paper and Fibre Company, Canton, N. C. Filed Aug. 19, 1944. 12 claims. (Cl. 252-361. A stream of foam is introduced into the path of rotation of a rapidly rotating paddle at a location intermediate the axis of rotation and the circumference of the path of the paddle.

2,405,213. Process and apparatus for production of fiber from vegetable matter. Clark C. Heritage, assignor to Wood Conversion Company, Cloquet, Minn. Filed Aug. 3, 1940. 5 claims. (Cl. 92-6). The lignocellulosic material is heated in the presence of steam at 212° F. and then discharged into a conduit during the passage of which the fibers are subjected to the continuous action of steam.

2,405,310. Basket handle. Daniel A. Larkin, assignor to The Hinde & Dauch Company, Sandusky, Ohio. Filed April 3, 1944. 3 claims. (Cl. 229-52A).

2,405,327. Message sheet. William P. Rend, Chicago, Ill. Filed Sept. 1, 1943. 3 claims. (Cl. 229-92.1).

2,405,391. Bag waxing machine. Edwin F. Anderson, assignor to Pillsbury Flour Mills Company, Minneapolis, Minn. Filed April 22, 1943. 9 claims. (Cl. 91-46). Apparatus for coating and sealing the secured and collapsed filling end of a filled paper bag.

2,405,423. Composition panel board. William F. Hayes, Detroit, Mich. Filed July 31, 1940. 3 claims. (Cl. 154-44). A composite fiber board comprises a plurality of loosely felted fibrous sheets, including at least one sheet which is saturated and one which is not saturated with a hardened thermoplastic waterproofing material.

2,405,450. Process for making low molecular weight lignin degradation products. Jörgen R. Salvesen, Ralph L. Hossfeld, and Robert J. Lovin, assignors to Marathon Corporation, Wausau, Wis. Filed Feb. 1, 1944. 15 claims. (Cl. 260-124). A lignin material is heated with an alkali and a low-molecular weight alcohol at 270° to 350°, giving a mixture of catechols, monohydric phenols, and neutral oils.

2,405,451. Process for producing low molecular weight lignin degradation products. Jörgen R. Salvesen, Ralph L. Hossfeld, and Robert J. Lovin, assignors to Marathon Corporation, Wausau, Wis. Filed Jan. 22, 1945. 9 claims. (Cl. 260-124). Lignin materials are heated with an aqueous alkali and a secondary aliphatic alcohol at 250° to 350° C., giving a mixture of catechols, monohydric phenols, and neutral oils.

2,405,499. Container for frozen foods. Reynolds Guyer and Russell J. Hennessey, assignors to Waldorf Paper Products Company, St. Paul, Minn. Filed Sept. 11, 1943. 3 claims. (Cl. 229-16). A container comprising a series of four panels foldably connected together.

2,405,517. Bottle carrier. Walter D. Plummer, Toledo, Ohio, assignor to Owens-Illinois Glass Company. Filed Jan. 1, 1945. 1 claim. (Cl. 224-45).

2,405,521. Web of stretchable material and bag made therefrom. William W. Rowe, assignor to Cincinnati Industries, Inc., Cincinnati, Ohio. Filed Aug. 3, 1940. 14 claims. (Cl. 229-55). The material comprises a plurality of stretchable paper characterized by a single set of lines of rugosities.

2,405,527. Laminated materials and method of making same. Max Skolnik, assignor to Fibro-Mold Specialties, Inc., Chicago, Ill. Filed Nov. 6, 1942. 8 claims. (Cl. 154-28). A plurality of corrugated fibrous webs, each of which has over a major portion of an outer surface a coating of a meltable, flowable bituminous composition, and directly superimposed thereon an adherent layer of a hardened, stone-like cement composition.

2,405,528. Method of forming shaped articles. Max Skolnik, assignor to Fibro-Mold Specialties, Inc., Chicago, Ill. Filed June 19, 1943. 4 claims. (Cl. 154-110). A fibrous material impregnated with a high melting point bitumen is coated with a magnesium oxychloride and shaped.

August 13, 1946

2,405,564. Folding box. Guy J. Evans, Buffalo, N. Y. Filed July 23, 1943. 1 claim. (Cl. 229-41).

2,405,675. Method of forming seals. Charles A. Southwick, Jr., and Arthur F. Stagmeier, assignors to General Foods Corporation, New York, N. Y. Filed July 25, 1940. 8 claims. (Cl. 154-42). Method of forming a seal between adjacent flat sheets of packaging material having opposed surfaces of thermoplastic sealing material.

2,405,813. Drier. Charles E. Blanchard, assignor to B. F. Sturtevant Company, Hyde Park, Boston, Mass. Filed May 6, 1944. 3 claims. (Cl. 34-68). A system for drying coated tape and the like by infrared lamps.

2,405,823. Container. Paul C. Gaylord, assignor to Greif Bros. Cooperage Corporation,

Cleveland, Ohio. Filed Oct. 8, 1943. 4 claims. (Cl. 229-5.5). A compressible gasket of twisted fibrous material is fastened to the outer wall of a fibrous laminated body.

2,405,896. Portable pulpwood saw. Leon H. Mathis, Lake City, Fla. Filed Sept. 24, 1943. 2 claims. (Cl. 143-43).

August 20, 1946

2,406,033. Apparatus for the manufacture of convoluted rods. Hiram A. Perkins, assignor to Setter Bros., Inc., Cattaraugus, N. Y. Filed Jan. 19, 1944. 8 claims. (Cl. 93-1). Means for forming loosely convoluted rolls of paper.

2,406,051. Apparatus for forming corrugated structures. Gerhart Weiss, Sunnyside, N. Y. Filed June 26, 1943. 1 claim. (Cl. 154-30). Means for forming corrugated material containing core members.

2,406,056. Means for coating papers. William Barrett, assignor to Minnesota and Ontario Paper Company, Minneapolis, Minn. Filed Nov. 24, 1943. 12 claims. (Cl. 91-49). A method for coating a continuous web of paper, in which the applicator roll and fountain form a coating material compartment; a doctor roll is mounted in the fountain for co-operating with the applicator roll in controlling the amount of coating material applied to the applicator roll, and the coating material is supplied to the fountain at a point in a plane between the middle of the doctor roll and the top of the fountain.

2,406,057. Coating apparatus. William H. Barrett and Bernard K. Asdell, assignors to Minnesota and Ontario Paper Company, Minneapolis, Minn. Filed Nov. 30, 1944. 12 claims. (Cl. 91-49). The apparatus consists of an applicator roll, a fountain, a metering roll, and a doctor roll.

2,406,061. Siftproof carton. Thomas F. Cass, Jr., assignor to Container Corporation of America, Chicago, Ill. Filed April 28, 1944. 4 claims. (Cl. 229-14). A folding carton.

2,406,097. Method for producing white sodium rosinates. Avery A. Morton, Watertown, Mass. Filed Jan. 21, 1942. 8 claims. (Cl. 260-15). A mixture of white and dark alkali metal resinates is sepd. by removing the dark rosinate with a petroleum solvent.

2,406,123. Container, materials, and parts therefor. Philip Zalkind, New York, N. Y. Filed Feb. 18, 1944. 1 claim. (Cl. 24-204). A formation for the edge of a sheet of fibrous material for joining such edge to a similarly formed edge.

2,406,254. Berry box or the like. William A. Ringler, assignor to The Gardner-Richardson Company, Middletown, Ohio. Filed March 3, 1944. 12 claims. (Cl. 229-24). A square blank for a berry box.

2,406,301. Sealed moistureproof paper package. James W. Lively, San Jose, Calif. Filed Nov. 11, 1943. 1 claim. (Cl. 229-14).

August 27, 1946

2,406,416. Paper garment. Frank D. Turner, Neenah, Wis., assignor of one half to Howard D. Meincke, Chicago, Ill. Filed May 31, 1943. 3 claims. (Cl. 154-44). A pliable fabric from which to manufacture a garment.

2,406,453. Treatment of paper or textile fabrics. William Charlton, Stanley G. Jarrett, and Eric E. Walker, assignors to Imperial Chemical Industries Limited, London, England. Filed March 8, 1944. 8 claims. (Cl. 117-139.5). Paper or textiles are treated with persulfuric acid or a water-soluble persulfate and then with the vapors of a readily polymerizable compound containing the $CH_2{:}CH—$ group in the presence of water-soluble oxyacids of sulphur or their salts.

2,406,454. Treatment of paper or textile fabrics. William Charlton, Stanley G. Jarrett, and Eric E. Walker, assignors to Imperial Chemical Industries Limited, London, England. Filed March 8, 1944. 9 claims. (Cl. 117-139.5). This is similar to the preceding patent.

2,406,470. Coating apparatus. William D. Maxim and Edward Hutchins, assignors to International Paper Company, New York, N. Y. Filed April 4, 1944. 7 claims. (Cl. 91-49). A means for supplying coating material to a pond in the form of a film substantially evenly distributed throughout the width of one of the rolls and means for varying the thickness of the film by changes in the level of the pond.

2,406,581. Process of utilizing waste liquors. Hilding O. V. Bergström, Stocksund, and Karl G. Trobeck, Stockholm, Sweden. Filed May 22, 1943. 8 claims. (Cl. 23-48). Black liquors are subjected to a preliminary evaporation in the presence of air in quantity sufficient to substantially eliminate evolution of hydrogen sulfide during subsequent evaporation to dryness, then concentrating the oxidized liquors to a solids content of 80 to 95% under superatmospheric pressures and a temperature of 180 to 200° C., and flash drying to a porous solid.

2,406,618. Device for sorting, dehydrating, or washing of suspensions of fibrous materials. Karl O. Lindgren, assignor to Aktiebolaget A. Ekstroms Maskinaffar, Stockholm, Sweden, and Nils W. Jonsson, Lidingo, Sweden. Filed Feb. 4, 1943. 2 claims. (Cl. 92-36). An apparatus for washing paper pulp.

2,406,660. Bag. Charles V. Brady, assignor to Bemis Bro. Bag Company, St. Louis, Mo. Filed Jan. 24, 1944. 1 claim. (Cl. 229-55).

2,406,661. Bag closure. Charles V. Brady, assignor to Bemis Bro. Bag Company, St. Louis, Mo. Filed May 15, 1944. 2 claims. (Cl. 24-30.5).

2,406,680. Process for curing adhesive bonds in laminated structures. Horace W. Hall, Newton, Mass. Filed March 8, 1943. 2 claims. (Cl. 154-133). Process of making a laminated article and curing an adhesive bond within the interior of the article.

2,406,711. Foldable end wall carrier and carton. William A. Ringler, assignor to The Gardner-Richardson Company, Middletown, Ohio. Filed Jan. 15, 1942. 6 claims. (Cl. 224-45).

September 3, 1946

2,406,758. Container of paper and method of making the same. Marshall E. Gazette, assignor to Continental Can Company, Inc., New York, N. Y. Filed Aug. 7, 1942. 2 claims. (Cl. 229-4.5).

2,406,791. Method of closing bag tube ends. Daniel Belcher, assignor to Bemis Bro. Bag Co., Minneapolis, Minn. Filed Jan. 15, 1943. 6 claims. (Cl. 93-35).

2,406,867. Method of treating lignocellulosic material. George H. Tomlinson and George H. Tomlinson, Jr., assignors to Howard Smith Paper Mills Limited, Montreal, Canada. Filed Dec. 31, 1943. 18 claims. (Cl. 260-124). A method of precipitating lignin from black liquor by means of carbon dioxide.

2,406,894. Closure for paper containers. Frank J. O'Brien, assignor to Continental Can Company, Inc., New York, N. Y. Filed Feb. 28, 1944. 4 claims. (Cl. 229-5.5).

2,406.904. Wood grinding machine. Frederick W. Roberts, Lockport, N. Y. Filed May 5, 1944. 2 claims. (Cl. 241-97). In a pulp grinder, a shield at one side of the grindstone which extends substantially coaxially with the feed ring and is spaced therefrom to receive shims which have passed through the space between the feed ring and the grindstone.

2,406.990. Antifungus wrapper, etc. George C. Borden, Jr., and Karl R. Karlson, assignors to Riegel Paper Corporation, New York, N. Y. Filed Nov. 17, 1944. 6 claims. (Cl. 117-154). A moisture-resistant coated paper contains in the coating a small percentage of a lower dialkyl dichlorosuccinate, which slowly vaporizes over a prolonged period of time.

2,407.028. Portable timber cutting saw apparatus. Edmond C. McLean, Palatka, Fla. Filed Sept. 19, 1945. 2 claims. (Cl. 143-43).

2,407.111. Hand grip and closure for cartons. Robert V. Thompson, Indianapolis, Ind. Filed March 18, 1943. 18 claims. (Cl. 229-52).

2,407,118. Method of making shallow baking plates of cellulose material. Harry F. Waters, New York, N. Y. Filed April 20, 1942. 2 claims. (Cl. 93-49).

2,407,174. Envelope machine. John L. Oberender, assignor to Oles Envelope Corporation, Baltimore, Md. Filed March 23, 1944. 11 claims. (Cl. 271-2). A sheet turning section for an envelope machine.

September 10, 1946

2,407,316. Automatic cutter. John R. McLaughlin, assignor to Tampax Incorporated, New York, N. Y. Filed Oct. 23, 1942. 13 claims. (Cl. 164-68).

2,407,335. Apparatus for smoothing hot melt coatings. Arthur M. Wickwire, Jr., assignor to Interchemical Corporation, New York, N. Y. Filed July 10, 1943. 3 claims (Cl. 91-53). A plurality of spaced bars having smooth curved surfaces, means for heating each of the surfaces, and means for causing the material to pass through an angular path in contacting each of the bars.

2,407,415. Dispensing package. Joseph S. Graziano, Joliet, Ill. Filed May 17, 1944. 3 claims. (Cl. 229-7).

2,407,463. Container. Benjamin M. Williams, assignor to Gaylord Container Corporation, St. Louis, Mo. Filed Oct. 16, 1944. 6 claims. (Cl. 229-45).

2,407,465. Method and apparatus for making caps or covers. Lawrence G. Zesbaugh, assignor to Perma-Seal Closure Co., St. Paul, Minn. Filed July 8, 1942. 7 claims. (Cl. 93-1.3). A method of making a cap for a food container.

2,407,500. Container for explosive shells. Harold E. Krasner and Bertha Klausner, New York, N. Y. Filed Feb. 3, 1945. 3 claims. (Cl. 206-3).

2,407,514. Manufacture of fibrocementitious sheets. Ernest W. Rembert, assignor to Johns-Manville Corporation, New York, N. Y. Filed Sept. 11, 1943. 14 claims. (Cl. 25-42).

2,407,549. Method of surface coating tissue paper with thermoresponsive resins. Irving Gurwick, New York, N. Y. Filed March 11, 1943. 6 claims. (Cl. 154-97). The resin is applied to the tissue paper by means of a nonadherent carrier for the resin film, after which the paper is heated to break down the continuity of the resin film, thus increasing the wet strength of the paper.

2,407,615. Fire-resisting coating and impregnating compositions. Cecil F. Moon, Cricklewood, London, and Norman Collinson-Jones, Hatch End, England. Filed Oct. 9, 1944. 10 claims. (Cl. 106-84). The composition contains sodium silicate in water, a filler, a setting agent (oil of vitriol), and a suspension agent (acetic acid).

September 17, 1946

2,407,639. Container and method of making same. Frank Gilbert, Jr., Olmsted Falls, Ohio. Filed May 4, 1942. 8 claims. (Cl. 93-36). A quantity of liquid filler (normally solid) is placed in an outer shell of fibrous material, an inner shell is inserted, and the filler is allowed to solidify.

2,407,668. Fire resistant coating composition. Martin Leatherman, Hyattsville, Md. Filed June 20, 1942. 10 claims. (Cl. 260-32). The composition contains butyl methacrylate polymers and the ethyl, methyl, or propyl ester polymers of acrylic and methacrylic acids and an equal quantity of polyvinyl chloride polymer and vinyl chloride-vinyl acetate copolymer, with plasticizer, solvent, and zinc carbonate.

2,407,756. Method for saturating fibrous sheet material. James G. Young, assignor to Bird & Son, Inc., East Walpole, Mass. Filed March 24, 1943. 5 claims. (Cl. 117-115). Method of saturating a fibrous sheet with hot bituminous compound.

2,407,781. Method and apparatus for sealing cartons. Reynolds Guyer, assignor to Waldorf Paper Products Company, St. Paul, Minn. Filed Aug. 30, 1943. 6 claims. (Cl. 229-37).

2,407,798. Bottle carrier. William A. Ringler, assignor to Gardner-Richardson Company, Middletown, Ohio. Filed Nov. 12, 1942. 1 claim. (Cl. 229-28).

2,407,802. Lined carton. Herbert J. Stotter, Shaker Heights, Ohio. Filed May 1, 1941. 1 claim. (Cl. 229-14).

2,407,833. Method of manufacturing articles from fibrous material. Bruno Jablonsky, Waddon, Croydon, England. Filed June 1, 1944. 6 claims. (Cl. 154-126). Fibrous material is bonded by an adhesive under pressure and heat in a high-frequency electric field.

2,407,865. Closure for cartons. Ernest J. Biskamp, San Antonio, Texas. Filed Dec. 16, 1943. 2 claims. (Cl. 229-17).

2,407,909. Purification of crude cellulosic material. George P. Vincent and Archie L. Dubeau, assignors to The Mathieson Alkali Works, Inc., New York, N. Y. Filed Sept. 18, 1940. 4 claims. (Cl. 92-13). Crude cellulosic material is impregnated with sodium hydroxide, exposed to steam for 30 minutes, washed with water, treated with aqueous sodium chlorite, and again exposed to steam.

2,407,919. Dispensing box or container. Kenneth T. Buttery, assignor to Sutherland Paper Company, Kalamazoo, Mich. Filed Oct. 8, 1945. 2 claims. (Cl. 206-57).

2,407,926. Paper yarn. Kenneth Hamilton, assignor to Mohawk Carpet Mills, Inc., Amsterdam, N. Y. Filed Feb. 7, 1945. 7 claims. (Cl. 57-154). The paper contains a substantial quantity of water to make it flexible and a water-impenetrable continuous coating which improves its wet strength.

September 24, 1946

2,407,988. Process for treating cellulose matter with terpene dihydrochloride. Christopher Luckhaupt, assignor to Luckite Processes, Inc., Delawanna, N. J. Filed Feb. 14, 1942. 1 claim. (Cl. 117-143). Cellulosic material is impregnated with a mixture of terpene dihydrochloride and cellulose acetate at a temperature at or above the melting point of the hydrochloride.

2,407,989. Process for treating cellulose matter with terebene. Christopher Luckhaupt, assignor to Luckite Processes, Inc., Delawanna, N. J. Filed Feb. 17, 1942. 1 claim. (Cl. 117-143). The material is impregnated with terebene and cellulose acetate at between 220° and 310° F.

2,408.064. Continuous gluing machine. Selden H. Hall, assignor to James L. Taylor Mfg. Co., Poughkeepsie, N. Y. Filed Jan. 23, 1942. 15 claims. (Cl. 144-279).

2,408,147. Transfer sheet. Ralph M. Kneale, Cleveland Heights, Ohio. Filed June 24, 1944. 2 claims. (Cl. 41-33). A sheet of translucent paper coated with paraffin wax and isolated printed areas.

2,408,159. Packaging wrapper. George W. Boh, assignor to O. B. Andrews Company, Chattanooga, Tenn. Filed March 6, 1944. 1 claim. (Cl. 206-46). A package of yarn cones.

2,408,176. Cover for the suction boxes of papermaking machines. Jean Proulx, Hull, Quebec, Canada. Filed Dec. 16, 1943. 1 claim. (Cl. 92-51). The cover consists of a plurality of elongated wax-impregnated end-of-grain wood blocks.

2,408,189. Waterproof explosive cartridge. Arthur W. Baker, assignor to Hercules Powder Company, Wilmington, Del. Filed Nov. 10, 1942. 2 claims. (Cl. 102-24). The tubular envelope consists of a tube of waterproof laminated paper.

2,408,222. Blade package. Joseph Muros, assignor to Gillette Safety Razor Company, Boston, Mass. Filed March 25, 1944. 3 claims. (Cl. 206-46). An open container for use in forming a razor blade package.

2,408,317. Banded bread loaf package. Ap Trevor Jones, assignor to Interstate Bakeries Corporation, Kansas City, Mo. Filed May 24, 1943. 1 claim. (Cl. 99-172). The wrapper has a potentially adhesive flowable coating adapted to be activated by heat and pressure.

Paper and Paper Stock Imports At New York and Other Ports

NEW YORK IMPORTS

WEEK ENDING NOVEMBER 9, 1946

SUMMARY

Newsprint	12,505 rolls
Paperhangings	69 bls., 3 cs.
Decalcomania Paper	1 drum, 93 cs.
Drawing Paper	7 cs.
Filter Paper	34 cs.
Printing Paper	2 cs.
Parchment Paper	4 cs.
Miscellaneous Paper	2 crates

NEWSPRINT

H. G. Craig Co., G.T.D., Donnacona, 351 rolls.

Madden, Reeve Angel & Co., Inc., Willis Van Devanter, Kotka, 1392 rolls.

News Syndicate Co., Inc., Brian, Thorold, 2037 rolls.

International Paper Co., International No. 1, Gatineau, 312 rolls.

News Syndicate Co., Inc., Kay, Thorold, 1764 rolls.

H. G. Craig Co., Newscarrier, Donnacona, 366 rolls.

Monrmorency Paper Co., Darel M. Ritter, Botwood, N. F., 6283 rolls.

PAPERHANGINGS

W.H.S. Lloyd & Co., Henry Baldwin, London, 69 bls., 3 cs.

DECALCOMANIA PAPER

B. F. Drakenfeld & Co., Anson P. K. Safford, Liverpool, 38 cs., 1 drum (duplex & collodion); 55 cs. (duplex & skin transfer tissue).

DRAWING PAPER

Winsor Newton, Inc., Henry Baldwin, London, 1 cs.

H. Reeve Angel & Co., Inc., Henry Baldwin, London, 6 cs.

FILTER PAPER

H. Reeve Angel & Co., Inc., Henry Baldwin, London, 34 cs.

PRINTING PAPER

S. H. Pomerance & Co., Henry Baldwin, London, 2 cs.

PARCHMENT PAPER

Dingelstedt & Co., Warwick Victory, Antwerp, 4 cs.

MISCELLANEOUS PAPER

Federal Telephone & Radio Corp., Henry Baldwin, London, 2 crates (Bitumenseal).

RAGS, BAGGINGS, ETC.

Castle & Overton, Inc., Anson P. K. Stafford, Liverpool, 82 bls. mixed jeans (rags).

Alfred Bloch Co., Anson P. K. Stafford, Liverpool, 110 bls. cotton cuttings (paperstock).

Irving Trust Co., Henry Baldwin, London, 54 bls. new colored cotton cuttings.

American Express Co., Henry Baldwin, London, 12 bls. new linen threads; 2 bls. new linen canvas.

Tradesmans National Bank Trust Co., Henry Baldwin, London, 215 bls. paperstock.

Buffalo Batt & Felt Corp., Cressington Court, Cochin, 100 bls. cotton waste.

Lush Cotton Products Co., Cressington Court, Cochin, 175 bls. cotton waste.

Cowa & Co., Temple Arch, Joao Pessoa, 295 bls. cotton picker waste.

Amicale Trading Co., Mormacstar, Buenos Aires, 85 bls. new cotton cuttings.

(———), Cape Domingo, Bombay, 655 bls. hemp net cuttings.

Chase National Bank, Santa Teresa, Callao, 122 bls. wool thread waste.

GLUESTOCK, ETC.

E. Butterworth & Co., Inc., Anson P. K. Stafford, Liverpool, 250 bags hidecuttings.

Bank of London, & South America, Warwick Victory, Antwerp, 300 bags animal glue (sheets).

Trans-Atlantic Animal By-Products Corp., Temple Arch, Fortaleza, 200 bags bone glue (sheets).

CASEIN

E. Lang, Inc., Citadel Victory, Buenos Aires, 250 bags (rennet), 33067 lbs.

Hercules Powder Co., Mormacstar, Buenos Aires, 1000 bags (lactic), 80,000 kilos.

American Cyanamid & Chemical Corp., Mormacstar, Buenos Aires, 2502 bags (ground lactic), 101,605 kilos.

WOODPULP

Pulp Sales Corp., Willis Van Devanter, Kotka, 2870 bls. prime unbleached sulphite pulp, 524 tons; 405 bls. prime bleached sulphate pulp, 81 tons; 2130 bls. prime bleachable unbleached sulphite pulp, 426 tons; 315 bls. sulphite pulp, 25 tons.

National City Bank, Willis Van Devanter, Spjutsund, 3048 bls. white dry mechanically ground woodpulp, 609 tons.

Pulp Sales Corp., Tunaholm, Kemi, 270 bls. prime unbleached light & strong sulphate pulp; 3230 bls. prime unbleached kraft sulphate pulp; 1550 bls. prime unbleached extra strong sulphite pulp.

WOODPULP BOARDS

Jay Madden Corp., Willis Van Devanter, Kotka, 854 rolls, 294 bls., 329 tons.

PHILADELPHIA IMPORTS

WEEK ENDING NOVEMBER 9, 1946

Schwartz & Co., Warwick Victory, Antwerp, 4 cs. parchment paper.

Chase National Bank, Warwick Victory, Antwerp, 231 bls. cotton rags.

NORFOLK IMPORTS

WEEK ENDING NOVEMBER 9,. 1946

Montmorency Paper Co., Darel M. Ritter, Botwood, N. F., 2778 rolls newsprint.

Ethulose Is Offered As Sizing or Adhesive

NEW YORK—Ethulose, a new product of George J. Johnson Company, 865 First Ave., is a water-soluble cellulose derivative obtained by etherifying high alpha wood pulp with a mixon the desired properties of the products, the wood pulp can be pretreated ture of etherifying agents. Depending in order to increase reactivity or to modify its properties. Its resistance against fats, oils, and alkalis is said to be excellent. For common technical use, most of the demands are satisfied by a standard type, available in three viscosity ranges.

When a solution of Ethulose is heated to 50-60 C. it is converted into a thixotropic gel, provided that the concentration is sufficient (3% or higher). At lower concentration simple floculation takes place. The process is reversible, and a clear solution is again obtained upon cooling. The gelation temperature is strongly affected by the presence of anions. Chloride and sulphate ions decrease the gelation temperature. At high salt concentrations, a simple floculation takes place even at room temperature.

Ethulose is recommended by its maker as a film forming material, sizing agent, binder, thickening agent, preservative colloid in aqueous solutions, and as an adhesive for paper and textiles. As mentioned, Ethulose is made to replace a great many of the vegetable and animal glues, e.g. starch, alginate, agar, etc.

Ethulose keeps for an unlimited time in clean stainless containers, and is resistant to frost and heat. It is completely neutral, and perfectly free from odor. It is edible and non-toxic.

Fire Damages Consolidated Machine

WISCONSIN RAPIDS, Wis. — Slight damage to the roof of the No. 3 machine room of the Consolidated Water Power and Paper Company resulted when a small fire broke out below the ventilator on November 2. The sprinkler system was touched off and an emergency fire protection crew brought the flames under control.

Week's Record of Trends in The Pulp and Paper Market

Office of the PAPER TRADE JOURNAL,
Wednesday, November 13, 1946.

Echoes of "Happy Days are Here Again," are heard throughout the paper industry. With decontrol an actuality, certain quarters view the ever expanding capacity of the industry as an indicator of unhearalded prosperity; and eye hungry markets here and abroad. Converters joyfully see decontrol as the key to open up new markets; especially in the packaging field. Dubious publishers cautiously try to guage demand and wonder if advertising rates and circulation will be maintained at levels sufficient to protect their heavy investments in paper mills. Speculative paper and paperboard buyers so active just prior to decontrol are already counting the profits and deserts of free enterprise. Manufacturers, meanwhile, look to a saner market and the gradual disappearance of order duplication.

Decontrol is not expected to bring about any immediate adjustment in production of low and high grade papers. In the long run prices for low grade papers probably will rise and stay over present ceilings; while prices for high grade papers may level off at present ceilings or perhaps show a slight drop. Increased costs in labor, freight and fuel would indicate an over-all rise in paper prices with the coming of decontrol. However, an increase in production of low grade papers over high grades would tend to equalize such cost increases and not add materially to the price of paper.

Domestic production of paper and paperboard in September reached a higher daily average rate than was shown for August. However, the tonnage of paper and board produced declined somewhat because of the fewer working days in September. Total production was 1,598,232 tons, or about 86,000 tons below the August record; but nearly 189,000 tons above the corresponding figure for September 1945. September receipts of pulpwood at 1,819,728 cords, while below the August record were sufficiently high to increase inventories at pulp mills to 3,953,004 cords, a new high for the year. Consumption in September was 1,504,930 cords. Receipts of fibrous materials other than pulpwood were lower in September than in August, and a continuing high rate of consumption reduced inventories of these materials by approximately 5,000 tons. Wood pulp production at 887,033 tons was some 25,000 tons belows August, again reflecting the shorter working month. Consumption of wood pulp in paper and paperboard manufacture was 995,617 tons. Inventories at paper and board mills declined about 14,000 tons during the month as recepits of European wood pulp decreased. Inventories at pulp mills declined about 7,000 tons during the month as receipts of Eurotember inventories at paper and board mills were 460,282 tons and at pulp mills 73,534 tons.

The index of general business activity for the week ended November 2 rose to 140.1 from 138.5 in the previous week, compared with 122.8 for the corresponding week in 1945. The index of paperboard production rose to 167.0 from 163.5 in the previous week, compared with 149.3 for the corresponding week in 1945.

Paper production for the week ended November 2 was estimated at 107.2 percent, compared with 106.8 for the preceding week, with 97.5 for the corresponding week in 1945, with 93.0 for 1944, with 90.6 for 1943, and with 88.5 percent for the corresponding week in 1942.

Paperboard production for the week ended November 2 was 100.0 percent of capacity, compared with 101.0 percent for the preceding week, with 97.0 for the corresponding week in 1945, with 96.0 for 1944, with 93.0 for 1943, and with 84.0 percent for the corresponding week in 1942.

Wood Pulp

Reports within the trade indicate that price increases for various grades of wood pulp are expected to take place immediately. At the same time, reports from practically all quarters reveal that the supply and demand situation in the industry is not likely to be altered greatly by decontrol in the immediate future, with supply continuing tight and demand sharp.

Most domestic producers are expected to begin quoting the European "on dock" prices which were put into effect by OPA last week, instead of delivered prices to which they were restricted by the pricing agency. In thus freeing themselves of the freight costs they formerly had to absorb, the price of pulp probably will rise from $5 to $7.50 per ton. It is believed that a few mills will raise prices more sharply than $7.50 per ton, but these will be marginal mills which previously were subsidized because of high operating costs.

Meanwhile, current consumption rates indicate there will be a deficiency of some 200,000 tons of pulp this year, which will have to come out of inventories on hand. Even with decontrol, it is doubtful whether added inducements could help the situation much before the end of the current shipping season.

Old Rope and Bagging

Market for old rope continues steady. Manila remains strong at 5.75c per pound and sisal 4.75c with other quotations unchanged.

Bagging market has eased up slightly with gunny at $4.50 shipping point and No. 1 scrap burlap going to paper mills at less than recent $4.50 to $4.75 levels.

Rags

Demand for cotton cuttings continues heavy for practically all grades. High grades are especially sought after and still remain in relatively less available supply. Prices are tops for all grades.

Waste Paper

With pulp conditions as they are, waste paper dealers are experiencing peak demands at fancy prices. Reports indicate white cuttings in some cases fetch considerably higher than ceiling prices. While mills in general are not quibbling about imperfect packs as they have been doing in the past. High grades are in heaviest demand, but all grades are taken up at top levels. Steps to improve the supply will be considered at meetings to which paper consuming mills throughout the East have been asked to send representatives.

Market Forge Produces An All-Steel Skid Platform

EVERETT, Mass.—The Market Forge Company, makers of materials handling equipment for almost half a century, has a new type of all-steel skid platform for use with hand and electric lift trucks. This new steel platform is made in any required size and for any specified lift truck. Steel deck panels made of medium gauge high-tensile strength steel form the load carrying surface. As a result a smooth, even surface is provided which is desirable for handling sheets of material such as paper, rubber, leather and the like.

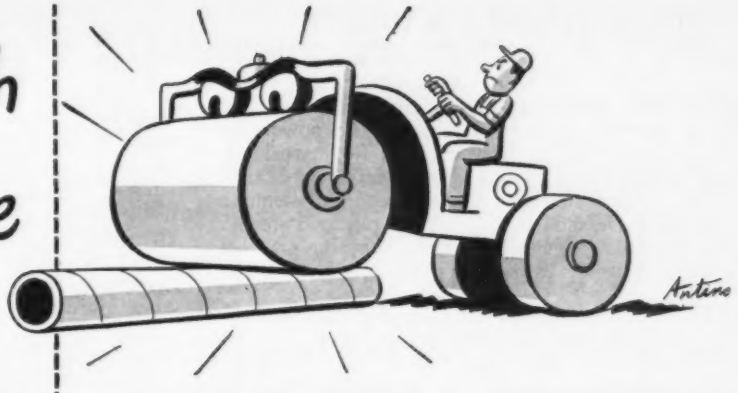
These deck panels are securely welded to "Z" bars which are the actual load-carrying members. Solid bar steel legs formed in a shape to give extra utility to platform then complete assembly.

Printers Supply Opens Its New Building

PITTSBURGH — The new home of Printers Paper Supply Company, as Pittsburgh's largest building devoted exclusively to the distribution of fine papers, has been built as a monument to phenomenal effort.

The new building is one of the most attractive and complete paper plants in the country. Its plans include the most modern methods and handling equipment. A streamlined inter-communications system has been installed to render finger-tip contact between departments and floors in the building in order to expedite service throughout. The new location also provides unusual facilities such as adequate railroad siding and trucking platforms to further speed up service deliveries.

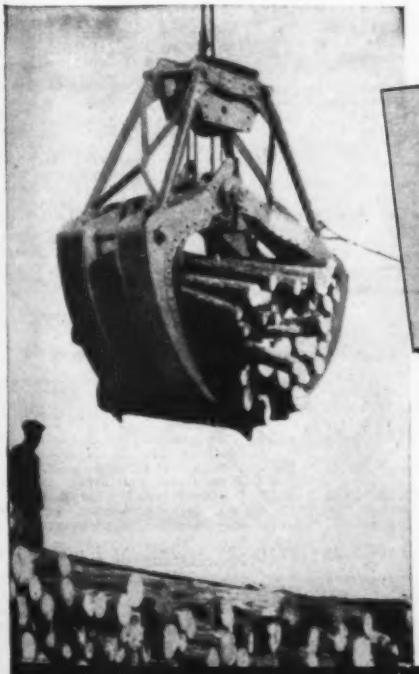
High Crush Resistance with MEAD Chestnut Cores



MEAD CHESTNUT CORES are known for their high crush-resistance, their ability to take tough handling. Spiral construction, plus the natural strength and hardness of the chestnut fibre, give them great rigidity and durability. Write for samples made to your specifications and give them the works. See for yourself the extra strength that makes them a "must" wherever handling conditions are bad.

Make your next carload . . MEAD CHESTNUT CORES.

THE MEAD CORPORATION
Lynchburg, Virginia



THIS GRAPPLE GRABS A MOUTHFUL... OPENS IN A HURRY FOR ANOTHER BITE!

Down into the hold and out... jaws crammed with pulpwood logs ... overside and back.

Two thousand cords unloaded from lake boat hold to shore in only forty-six hours! A routine job for a No. 16 Blaw-Knox Pulpwood Grapple.

This grapple is built for fast unloading from ship or car... fast re-handling from stacks.

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BLAW-KNOX PULPWOOD GRAPPLES

Send for your copy Bulletin No. 2043

MISCELLANEOUS MARKETS

Office of the PAPER TRADE JOURNAL,
Wednesday, November 13, 1946.

BLANC FIXE — Demand continues active as raw materials remain tight. Pulp is currently quoted at $40 per ton, in barrels, car lots, at works; the powder is currently quoted at $60 per ton, car lots, f.o.b. works.

BLEACHING POWDER — Shipments temporarily delayed due to drum shortage, supplies reported adequate to meet demand. Demand for export use reported steady. Quotations are unchanged. Prices on bleaching powder range from $2.50 to $3.10 per 100 pounds, in drums, car lots, at works.

CASEIN — Current prices on processed acid-precipitated casein are reported around 46 to 49 cents per pound for both domestic and Argentine grades; f.o.b. shipping point, with quantity not specified at the present time.

CAUSTIC SODA — Supplies tightest ever as market remains critical. Shipments are behind schedule as demand shows increasing strength. Cutback production further reduces stocks. Solid caustic soda is quoted at $2.30 per 100 pounds; flaked and ground is quoted at $2.70 to $3.95 per 100 pounds. All prices car lots.

CHINA CLAY—Supplies are becoming tighter as demand continues to increase for both domestic and English grades. Quotations remain unchanged. Domestic filler clay is currently quoted at from $8.50 to $9 per ton; coating clay is quoted at from $12 to $22 per ton, at mine. Imported clay is quoted at from $22 to $25 per long ton, ship side. All prices quoted in car lots.

CHLORINE — Demand continues to exceed output, market tight, stocks low. Tank car shortage delays shipments. Little or no improvement noted in container supplies. Quotations unchanged. Chlorine is currently quoted at $2.00 to $2.25 per 100 pounds, in single unit tank cars, f.o.b. works.

ROSIN—Gum rosin in drums, per 100 pounds net, in yard, New York, B, $8.30; D, $8.30; E, $8.60; F, G, H, I, K, M, N and WG, $8.70; WW, $8.75. All prices in car lots, rosin in bags, 5c less.

SALT CAKE — Demand jncreasing with supplies showing some improvement. Prices remain unchanged. Domestic salt cake is quoted at $15 per ton in bulk. Chrome salt cake is quoted at $16 per ton. All prices in car lots, f.o.b. shipping point.

SODA ASH—Supplies continue short, demand active, previous orders filled. Export inquiry very heavy. Quotations continue unchanged. Current prices, car lots, per 100 pounds, are as follows: in bulk, $.95; in paper bags, $1.05; and in barrels, $1.35.

STARCH—Supplies are showing steady improvement. Demand active with all offerings readily taken up. The pearl grade is quoted at $4.77 per 100 pounds; powdered starch at $4.87 per 100 pounds; both prices in bags, car lots, f.o.b. Chicago.

SULPHATE OF ALUMINA—Demand active, supply fair. Quotations continue unchanged. The commercial grades are quoted at from $1.15 to $1.20 per 100 pounds, in bags, car lots, f.o.b. works. The iron free is currently quoted at $1.75 to $2.00 per 100 pounds, in bags, at works.

SULPHUR—Strong seasonal demand is reported with stocks plentiful to meet all requirements. Annual contracts are quoted at $16 per long ton, f.o.b. mines; the price f.o.b. at Gulf Ports is $17.50 per long ton. All prices in car lots.

TALC—Domestic and French grades are moving in fair volume with prices steady. Domestic grades are currently quoted at from $16 to $30 per ton at mines; Canadian at $24 to $30 per ton. All prices on car lots.

MARKET QUOTATIONS

With the sudden, but not unforeseen, elimination of all OPA price controls on paper, pulp, rags and other materials, the quotations given below once more become indicative of trends in an open market. At the moment they can be of little more, for, while some volume of business still is being done, under contract at the figures given below, fluctuations representing special conditions are too varied and too frequent to permit prices to be given as representing a wholly stabilized market. As the emergency conditions pass, it may be expected that the quotations will become more generally applicable.

Paper

(Delivered New York)

Standard News, per ton—
Roll, contract ....$84.00 @ —
Sheets ..... 93.00 @ —

Kraft—per cwt.—Carload Quantities
Zone A, Delivered
Superstandard Wrapping .....*$5.25 @ —
No. 1 Wrapping.. *5.00 " —
Standard Wrapping*4.75 " —
Standard bag.....*4.75 " —

* Prices for Standard Wrapping are for 40 lb. base weight; for Standard Bag for 30 lb. base weight.

Tissues—Per Ream 24x36 (480) 10 lb. Zone 1.
Wh. No. 1 Frd. ... 1.10 @ 1.20
Wh. No. 1 M. G. .. 1.10 @ 1.20
Wh. No. 1½ ..... .95 @ 1.10
Wh. No. 2 ..... 1.00 @ 1.10
Wh. Anti-Tar. .... 2.25 @ 3.50
Kraft Unbl. ..... 1.15 @ 1.25
Manila No. 2 ..... .90 @ 1.05

Toilet—Per Case of 100 rolls 1 M Sheets.
Unbleached ..... 4.47 @ 5.50
Bleached ..... 6.50 " —

Paper Towels — Per Case of 3750 Zone 1.
Wh. C. fold 11x13¼ 4.09 @ —
Br. Sgl. fold 10 in. 2.37 " 2.48
Br. M'tif'd 9¼x14¾ 3.48 " —
Br. M'tif'd 9¼x9¾ 2.37 " 2.48

Manila—per cwt.—C. l. f. a.
No 1 Jute .....11.25 @ —
No. 1 Manila 35 lb. 6.00 " 7.00

Boards, per ton—
News .....*59.00 @ —
Chip .....*58.00 @ —
Sgl. Mla. Ll. Chip*67.00 @ —
White Pat. Coated*86.00 @ —
Kraft Liners 50 lb.*74.00 " —
Binders Boards... 84.00 " 116.00

Base Prices per 10 tons. Less than 10 tons but over 3 tons, add $2.50; three tons or less, add $5, regular 35-39 basis, add $5; basis 40-49, add $2.50; basis 91-100, add $2.50; basis 101-120, add $5.

The following are representative of distributors' resale prices, all deliveries in Zone 1:

Rag Content Bonds and Ledgers—White, Assorted Items

	Bonds	Ledgers
100% Rag Ext. No. 1	$39.75@$46.75	$40.90@$48.00
100% Rag.	32.85 " 38.50	34.00 " 40.00
85% Rag	.... "	30.55 " 38.75
75% Rag	24.30 " 28.50	24.45 " 30.00
65% Rag	.... "	.... " ....
50% Rag	20.05 " 24.50	21.25 " 25.75
25% Rag	17.85 " 21.75	19.00 " 23.25

Colors at $1.00 cwt. extra.

Sulphite Bonds and Ledgers..
White, Assorted Items

	Bonds	Ledgers
No. 1	$12.00@$14.50	$13.15@$16.00
No. 2	11.25 " 13.75	12.25 " 15.00
No. 3	.... "	.... " ....
No. 4	10.60 " 13.00	11.75 " 14.25

Colors $1.00 cwt. extra.

Free Sheet Book Papers—White, Cased Paper

No. 1 Glossy Coated..	$14.70	@ $16.75
No. 2 Glossy Coated..	13.75	" 15.50
No. 3 Glossy Coated..	13.20	" 14.00
No. 4 Glossy Coated..	12.80	" 14.50
No. 1 Antique (Watermarked)	11.35	" 12.75
No. 2 Offset	10.65	" 12.25
A Grade E. F.	10.60	" 12.00
A Grade S. & S. C. ..	11.00	" 12.50
B Grade E. F.	10.30	" 11.75
B Grade S. C.	10.70	" 12.25
C Grade E. F.	10.00	" 11.50
C Grade S. C.	10.40	" 12.00
D Grade E. F.	9.70	" 11.00
D Grade S. & S. C. ..	10.10	" 11.50

Ivory & India at $.50 cwt. extra.

Wood Pulp

Domestic Prices and Canadian Manufacturers' Prices, Less Freight Allowances.

Bl. Softwood Sulphite	$103.50
Unbl. Softwood Sulphite	90.00
Bl. Hardwood Sulphite	100.50
Unbl. Hardwood Sulphite	87.50
N. Bleached Sulphate	103.50
S. Bleached Sulphate	97.00
N. Semi-Bleached Sulphate	98.00
S. Semi-Bleached Sulphate	91.50
N. Unbl. Sulphate	83.50
S. Unbl. Sulphate	76.50
Bleached Soda	93.50
Unbleached Soda	88.00
Groundwood	64.00
Ground—Machine Dried	67.00
Sulphite Screenings	50.00
Sulphate Screenings	44.00
Groundwood Screenings	37.50
N. Unbl. Sulphate Siderurs	83.50
S. Unbl. Sulphate Siderurs	76.50
Standard Newsprint Siderurs	64.00

Transportation Allowances

Applying to Producers of Wet Wood Pulp.

	Below 50% Air Dry Weight
Northeast	$12.50
Lake Central	12.50
Southern	15.00
West Coast (in area)	9.50
West Coast (out area)	13.50

	50%-80% Air Dry Weight
Northeast	$10.50
Lake Central	10.50
Southern	13.00
West Coast (in area)	8.50
West Coast (out area)	14.50

Applying to Producers of Dry Wood Pulp.

	Above 80% Air Dry Weight
Northeast	$7.50
Lake Central	7.50
Southern	10.00
West Coast (in area)	6.50
West Coast (out area)	12.50

Should freight charges actually exceed these allowances, the difference may be added to the maximum price

New Domestic Cotton Cuttings

(Prices delivered Mill Plus Dealer's Commission)

	Per 100 lbs.
White Shirt	$7.25
Light Silesias	5.75
Unbleached Muslin	7.50
White Back Blue Overalls	5.75
Blue Overalls	5.50
Unbl. Fancy Shirt	3.50
Light Percales	4.75
Light Prints	4.50
Washables	3.00
Bleachable Khaki	4.25
Unbleachable Khaki	3.50
Cottonades	3.25

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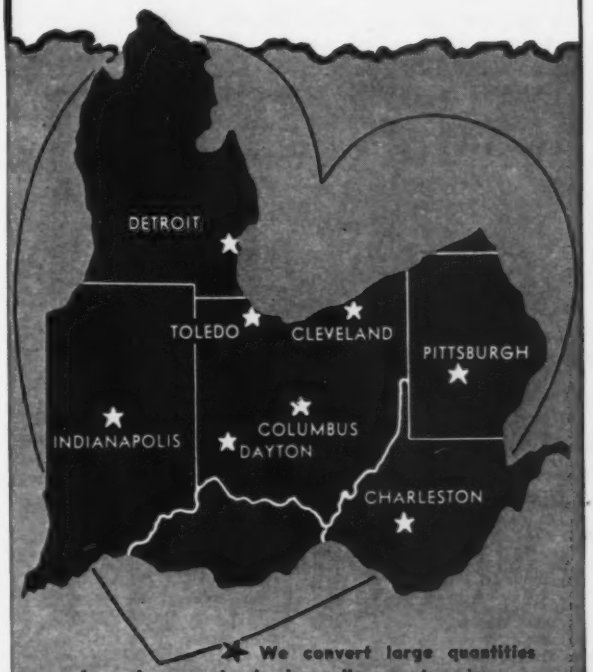

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Indianapolis Toledo Charleston

Old Domestic Cotton Rags

(F.O.B. Shipping Point Plus Dealer's Commission)

	Per 100 lbs.
No. 1 Whites Repacked	$3.80
No. 1 Whites Miscellaneous	3.20
No. 2 Whites Repacked	2.90
No. 2 Whites Miscellaneous	2.65
Blue Overalls	2.50
Thirds and Blues Repacked	2.20
Thirds and Blues Miscellaneous	1.30
No. 1 Roofing Rags	1.55
No. 2 Roofing Rags	1.45
No. 3 Jute Bagging	1.35
No. 4 Brussels and hard back carpets	1.35
No. 5A Roofing Rags	1.35

New Foreign Cotton Cuttings

(Prices delivered Mill)

	Per 100 lbs.
New Dark Cuttings	$6.00 to ....
New Mixed Cuttings	6.50 " ....
Light Silesias	9.00 " 10.00
Light Flannelettes	8.00 " 9.00
New White Cuttings	13.00 " 15.00
Fancy Shirt Cuttings	9.00 " 10.00
Light Prints	8.00 " 10.00
Bleachable Khaki, No. 1	7.00 " 7.50
Unbl. Khaki, No. 1	6.25 " 6.75

Old Foreign Rags

(F.O.B. New York)

	Per 100 lbs.
No. 1 White Linens	$14.00 to 16.00
No. 2 White Linens	12.00 " 13.00
No. 3 White Linens	8.00 " 9.00
No. 4 White Linens	8.00 " 9.00
No. 1 White Cottons	10.00 " 12.00
No. 2 White Cottons	8.00 " 9.00
No. 3 White Cottons	6.50 " 7.00
No. 4 White Cottons	5.00 " 5.50
Extra Light Prints	7.50 " 8.00
No. 1 New Light Prints	6.25 " 6.75
Med. Light Prints	5.25 " 5.75
Dutch Blue Cottons	5.25 " 5.50
Checks and Blues	4.00 " 4.25
Linsey Garments	4.50 " 5.00
Dark Cottons	3.75 " 4.00
Old Shopperies	3.25 " 3.50
New Shopperies	3.25 " 3.50

BAGGING

(Prices to Mill, f.o.b. N. Y.)

	Per 100 lbs.
Foreign Gunny, No. 1	$4.75 to 5.00
Domestic Gunny, No. 1	4.25 " 4.50
Light Wool Tares	4.50 " 4.75
Heavy Wool Tares	4.75 " 5.00
Bright Bagging	4.25 " 4.50
Foreign Manila Rope	6.00 " 7.00
Domestic Manila Rope	5.75 " ...
Jute Strings	4.50 " 5.00
No. 1 Sisal Strings	4.00 " 4.50
Mixed Strings	1.75 " ...

Waste Paper

Prices to Mills

(Dollars Per Ton)

F.o.b. New York, Baled

No. 1 Hard White Envelope Cuts, one cut	$67.50	●	—
No. 1 Hard White Envelope Cuts	62.50	"	—
No. 1 Hard White Shavings, unruled	57.50	"	—
No. 1 Hard White Shavings, ruled	50.00	"	—
Soft White Shavings, one cut	57.50	"	—
No. 1 Soft White Shavings	50.00	"	—
Soft White Shavings, Misc.	43.00	"	—
No. 1 Fly Leaf Shavings	33.50	"	—
No. 2 Fly Leaf Shavings	22.50	"	—
No. 1 Groundwood Fly Leaf Shavings	25.00	"	—
No. 2 Mixed Groundwood Fly Leaf Shavings	18.50	"	—
Mixed Colored Shavings	15.50	"	—
Mixed Groundwood Colored Shavings	18.00	"	—
Overissue Magazines	33.50	"	—
No. 1 Heavy Books & Magazines	38.50	"	—
Mixed Books	22.00	"	—
No. 1 White Ledger	46.00	"	—
No. 2 Mixed Ledger, colored	40.00	"	—
New Manila Envelope Cuttings, one cut	57.50	"	—
New Manila Envelope Cuttings	53.00	"	—
Extra Manilas	39.00	"	—
Mixed Kraft, Env. & Bag Cuttings	55.00	"	—
Kraft Envelope Cuttings	65.00	"	—
Triple Sorted, No. 1 Brown Soft Kraft	50.00	"	—
New 100% Kraft Corrugated Cuttings	45.00	"	—
No. 1 Assorted Old Kraft	35.00	"	—
New Jute Corrugated Cuttings	18.50	"	—
Old 100% Kraft Corrugated Containers	35.00	"	—
Box Board Cuttings	14.50	"	—
White Blank News	33.00	"	—
Overissue News	22.00	"	—
No. 1 News	20.00	"	—
No. 1 Mixed Paper	19.00	"	—
Old Corrugated	28.00	"	—
Mill Wrappers	22.00	"	—

Twines

All Prices Nominal

(F. o. b. Mill)

(Soft Fiber)

Coarse Polished—			
India	.26	●	—
White Hemp	.26	"	—
Fine Polished—			
Fine India	.31	"	—
Unpolished—			
Box	.20¾	"	—
Paper Makers	.20	"	—
Tube Rope	.22	"	—
Wall Paper	.23½	"	—
Wrapping	.26	"	—
Soft Fiber Rope	.22	"	—
Cotton	.28	"	—
(Hard Fiber)			
Medium Java	.23	"	—
Mex. Sisal	.21	"	—
Manila	.33	"	—

PHILADELPHIA

Domestic Rags (New)

(Price to Mill)

Shirt Cuttings—			
New White No. 1	.07¼		
New White No. 2	.05¾		
Light Silesias	.05¾		
Black Silesias, soft	.03¾		
New Unbleached	.07½		
Washable Prints	.04¼		
Washable No. 1	.03		
Blue Overall	.05½		
Cottons—According to grades—			
Washable Shredding	.01¾		
Fancy Percales	.04¾		
New Black Soft	.03¼		
Khaki Cuttings—			
Unbleachable Cotton Cuttings	.03½		
Bleachable Cotton Cuttings	.04¼		
Men's Corduroy	.03½		
Ladies' Corduroy	.03		
Cottonades	.03¼		

Domestic Rags (Old)

White No. 1—Repacked	3.80	●	—
Miscellaneous No. 1	3.20	"	—
Miscellaneous No. 2	2.65	"	—
White No. 2—Repacked	2.90	"	—
Thirds and Blues—			
Miscellaneous	1.80	"	—
Repacked	2.20	"	—
Black Stockings—(Export)	Nominal		
Roofing Stock—			
Foreign No. 1	Nominal		
Domestic No. 1	1.55	"	—
Domestic No. 2	1.45	"	—
Roofing Bagging	1.35	"	—
Old Manila Rope	5.75	"	—

Bagging

(F. o. b. Phila.)

Gunny No. 1—			
Foreign	Nominal		
Domestic	3.00	●	3.50
No. 1 Clean Bright—Sisal Strings	.04	"	—
No. 2 Clean Bright—Sisal Strings	.03	"	—
Sisal Jute	.02½	"	.02¾
Scrap—			
No. 1	3.25	"	3.50
No. 2	1.75	"	1.80
Wool Tares, heavy	4.00	"	4.25
No. 1 New Light Burlap	3.00	"	4.00
New Burlap Cuttings	3.75	"	4.00

Old Papers

(F. o. b. Phila.)

Mill Prices, Baled

No. 1 Hard White Envelope Cuts, one cut	3.37½	●	—
No. 1 Hard White Shavings, unruled	2.87½	"	—
Soft White Shavings, one cut	2.50	"	—
White Blank News	1.65	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 Fly Leaf Shavings	1.67½	"	—
No. 2 Fly Leaf Shavings	1.12½	"	—
No. 1 Groundwood Fly Leaf Shavings	1.25	"	—
No. 2 Groundwood Fly Leaf Shavings	.90	"	—
Mixed Colored Shavings	.75	"	—
New Manila Envelope Cuts, one cut	2.87½	"	—
Hard White Envelope Cuts, one cut	3.37½	"	—
Triple Sorted No. 1 Brown Soft Kraft	2.50	"	—
Mixed Kraft Env. & Bag Cuttings	2.75	"	—
Kraft Envelope Cuttings	3.25	"	—
No. 1 Heavy Books & Magazines	1.92½	"	—
New Manila Envelope Cuts, one cut	2.87½	"	—
New Manila Envelope Cuttings	2.65	"	—
White and Colored Tabulating Cards	2.25	"	—
Ground Wood Tabulating Cards	1.35	"	—
White Blank News	1.65	"	—
No. 1 Assorted Old Kraft	1.75	"	—
No. 1 Mixed Paper	.95	"	—
Overissue News	1.10	"	—
Box Board Cuttings	.72½	"	—
New Corrugated Cuttings, Kraft	2.25	"	—
Old 100% Kraft Corrugated Containers	1.75	"	—
Old Corrugated Containers	1.40	"	—
Jute Corrugated Cuttings	1.07½	"	—

Bagging

(F. o. b. Boston)

Gunny Bagging—			
Foreign	(nominal)		
Domestic	2.75	●	2.90
Sisal Rope No. 1	*4.75	"	—
Sisal Rope No. 2	* —	"	4.00
Mixed Rope	1.60	"	—
Transmission Rope—			
Foreign	(nominal)		
Domestic	2.75	"	3.00
Manila Rope—			
Foreign	(nominal)		
Domestic	5.75	"	—
Soft Jute Rope	4.50	"	5.00
Jute Carpet Threads	3.00	"	3.50
Bleachery Burlap	8.50	"	9.00
Scrap Burlap—			
Foreign	(nominal)		
Domestic	3.00	"	3.25
South America	—	"	3.25

BOSTON

Old Papers

(F. o. b. Boston)

Mill Prices, Baled

No. 1 Hard White Shavings, unruled	2.87½	●	—
No. 1 Hard White Shavings, ruled	2.50	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 Fly Leaf Shavings	1.67½	"	—
No. 2 Fly Leaf Shavings	1.12½	"	—
No. 1 Groundwood Fly Leaf Shavings	1.25	"	—
No. 2 Groundwood Fly Leaf Shavings	.90	"	—
Mixed Colored Shavings	.75	"	—
New Manila Envelope Cuts, one cut	2.87½	"	—
Hard White Envelope Cuts, one cut	3.37½	"	—
Triple Sorted No. 1 Brown Soft Kraft	2.50	"	—
Mixed Kraft Env. & Bag Cuttings	2.75	"	—
Kraft Envelope Cuttings	3.25	"	—
No. 1 Heavy Books & Magazines	1.92½	"	—
New Manila Envelope Cuts, one cut	2.87½	"	—
New Manila Envelope Cuttings	2.65	"	—
White and Colored Tabulating Cards	2.25	"	—
Ground Wood Tabulating Cards	1.35	"	—
White Blank News	1.65	"	—
No. 1 Assorted Old Kraft	1.75	"	—
No. 1 Mixed Paper	.95	"	—
Overissue News	1.10	"	—
Box Board Cuttings	.72½	"	—
New Corrugated Cuttings, Kraft	2.25	"	—
Old 100% Kraft Corrugated Containers	1.75	"	—
Old Corrugated Containers	1.40	"	—
Jute Corrugated Cuttings	1.07½	"	—
Misc.	2.15	"	—
No. 1 White Ledger	2.30	"	—
No. 2 Ledger, colored	2.00	"	—
No. 1 Heavy Books & Magazines	1.92½	"	—
Overissue Magazines	1.67½	"	—
New Manila Envelope Cuttings	2.65	"	—
No. 1 Assorted Old Kraft	1.75	"	—
No. 1 Mixed Paper	.95	"	—
Box Board Cuttings	.72½	"	—
Kraft Corrugated Cuttings	2.25	"	—
Old Corrugated Containers	1.40	"	—
Overissue News	1.00	"	—
No. 1 News	1.00	"	—

Waste Paper

(F. o. b. Chicago)

Mill Prices, Baled

Shavings—			
No. 1 Hard White Envelope Cuts, one cut	3.37½	●	—
No. 1 Hard White Shavings, unruled	2.87½	"	—
No. 1 Soft White Shavings	2.50	"	—
No. 1 White Ledger	2.30	"	—
No. 1 Heavy Books & Magazines	1.92½	"	—
White Blank News	1.65	"	—
Mixed Kraft Env. & Bag Cuttings	2.75	"	—
No. 1 Assorted Old Kraft	1.75	"	—
Overissue News	1.10	"	—
No. 1 News	1.00	"	—
No. 1 Mixed Paper	.95	"	—
No. 1 Roofing Rags	1.55	"	—
No. 1 Roofing Bags	1.45	"	—
Wool Tares—			
Foreign	(nominal)		
Domestic	4.25	"	—
Aust. Wool Pouches	—	"	3.60
New Zealand Wool Pouches	—	"	3.30
New Burlap Cuttings	4.75	"	5.00
Heavy Baling Bagging	4.00	"	4.25
Paper Mill Bagging	2.50	"	3.00
No. 2 Roofing Bagging	1.35	"	—

* OPA Maximum Prices.

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints	.04½	●	04¾
Fancy Percales	.04¼	"	04
New White No. 1	.06¾	"	07
New Light Flannelettes	.05½	"	06
Canton Flannels, Bleached	.06	"	06¼
Underwear Cutters, Bleached	.06¾	"	06¾
Underwear Cutters, Unbleached	.05¾	"	06
Silesias No. 1	.06	"	06¼
New Black Silesias	.03	"	03¼
Red Cotton Cuttings	.03½	"	04
Soft Unbleached	.06½	"	06¾
Blue Cheviots	.05½	"	06
Fancy	.02¾	"	—
Washable	.02¾	"	—
Khaki Cuttings	.02¾	"	03
O. D. Khaki	.03½	"	03¾
Corduroy	.03¼	"	03½
New Canvas	.06¼	"	06¾
B. V. D. Cuttings	.06¼	"	06¾

Domestic Rags (Old)

(F. o. b. Boston)

White No. 1—Repacked	3.80	●	—*
Miscellaneous	3.20	"	—*
White No. 2—Miscellaneous	2.65	"	—*
Twos and Blues, Repacked	2.20	"	—*
Old Blue Overalls	2.25	"	2.30
Thirds and Blues, Repacked	2.20	"	—*
Miscellaneous	1.80	"	—*
Black Stockings	3.50	"	4.00
Roofing Stock—			
No. 1	1.55	"	—*
No. 2	1.45	"	—*
No. 3	1.35	"	—*
No. 4	1.35	"	—*
No. 5, Quality A	1.35	"	—*
Quality B	1.20	"	—*
Quality C	.95	"	—*
Old Manila Rope	5.75	"	—*

* OPA Maximum Prices.

Foreign Rags

(F. o. b. Boston)

Canvas	(nominal)
Dark Cottons	(nominal)
Dutch Blues	(nominal)
New Checks and Blues	(nominal)
Old Fustians	(nominal)
Old Linsey Garments	(nominal)
New Silesias	(nominal)

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Plant engineers and master mechanics
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Beater engineers, machine and back tenders

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TOUR BOSS

Experienced in Roofing Felt Mill operations, to be trained for Assistant Superintendent job in New Orleans Plant of long established nation-wide organization. Send complete resume giving experience, education, salary expected, etc., to Box 46-807 care Paper Trade Journal. N-21

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We need a competent man at our Middletown, Ohio paper mill who can take over full responsibility in operating our 6-cylinder 82-inch Liner mill. This is an unusual opportunity for an experienced man who is looking for a permanent position at a very good salary. PRAIRIE STATE PAPER MILLS, 110 South Dearborn Street, Chicago 3, Illinois. TF

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Our paperboard mill, specializing in the manufacture of folding grades, is seeking an experienced chemist to assist in controlling formulae and improving our quality. An exceptional opportunity is offered to the right man. In your reply give complete background of experience and your desired compensation. Address Box 46-783 care Paper Trade Journal. N-21

SALES ENGINEER

Chance for advancement for the right man in paper machinery and manufacturing. Let's talk over salary and profit participation. Kurt Wandel—Paper Machinery—Honey Brook, Pa. N-21

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IMMEDIATE OPENING FOR A TOUR FOREMAN WORKING ROTATING SHIFTS.
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Pomona, California D-26

ACCOUNTANT—Paper mill Eastern Pennsylvania requires experienced general and cost accountant. Replies will be treated confidential. Address Box 46-800 care Paper Trade Journal. N-14

HELP WANTED

PAPER EMBOSSING DEPT. FOREMAN

Excellent opportunity offered to experienced operator on Waldron or similar Paper Embossing equipment, to be Foreman in southern paper mill. Write, giving full details of experience, age, salary required. Box #46-762 care Paper Trade Journal. N-14

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MACHINE DESIGNER:—Graduate Mechanical Engineer or equivalent. Should have experience with web printer and bag making machinery. Permanent position in large midwestern plant manufacturing printed and converted food packages. Real opportunity for one who has creative ability. Reply to Box 46-738 care Paper Trade Journal. N-14

GUMMING SUPERVISOR—Wanted by large well established paper converter. Should have practical experience in production of gummed paper and cloth tapes and gummed specialty papers. Give full details of qualifications and experience. Address Box 46-612 care Paper Trade Journal. D-19

WANTED—Progressive Mill with expansion program under way is in need of a man familiar with the receiving and handling of paper stocks and pulps used in the manufacture of Folding Boxboards. Excellent opportunity for the right man. Address Box 46-746 care Paper Trade Journal. N-14

CHEMIST OR CHEMICAL ENGINEER — New York City location. Young man, preferably with training and some experience in pulp and paper making for laboratory and development work in semi-chemical pulping. Send complete information in first letter. Address Box 46-760 care Paper Trade Journal. N-21

WANTED—PAPER MILL MECHANIC who has had experience setting up paper machines and beaters. Good opportunity for capable man to work into permanent position as plant engineer for small tissue mill located in Southern New York State. Address Box 46-782 care Paper Trade Journal. TF

TECHNICAL PERSONNEL with experience in paper converting. Requires thorough knowledge of printing coating and laminating. Program is both control and product development. Expanding organization. State qualifications fully. Address Box 46-780 care Paper Trade Journal. N-14

WANTED—AN EXPERT ELECTRICIAN AND ASSISTANT ELECTRICIAN. STEADY WORK IN A NICE PLANT. ADDRESS BOX 46-772 CARE PAPER TRADE JOURNAL. N-14

EXPERIENCED PAPER MILL ENGINEER, with knowledge of general engineering work, in long established consulting engineer's office specializing in pulp, paper mills and power plants. Location Manhattan. Excellent opportunity for right man. State complete details, age, experience, availability and salary desired. Address Box 46-779 care Paper Trade Journal. N-21

HELP WANTED

REQUIRED FOR PERMANENT EMPLOYMENT in Newfoundland, Graduate Mechanical or Civil Engineer for development and general engineering work for woods operations, involving an annual cut of 600,000 cords of pulpwood. Good salary and opportunity for qualified engineer. Applications should be sent to Bowater's Newfoundland Pulp and Paper Mills, Limited, Corner Brook, Newfoundland. N-21

WANTED — WAXING FOREMAN to take charge of small waxing plant located in New Hampshire, who has the qualifications of developing a general waxing business. Address Box 46-810 care Paper Trade Journal. N-21

WANTED—Superintendent for small mill. Experience in production of waxing papers desirable. State experience, salary and availability. Address Box 46-805 care Paper Trade Journal. N-21

MACHINE TENDERS for cylinder mill making .009-.016. Apply in person. Stockport Paper Corporation, Stockport, New York. N-14

SITUATIONS WANTED

SPECIALIST

From paper machines on thru the various finishing and shipping operations. Planning, routing, scheduling, increased output, lower costs and waste. Would like contact company with one or more mills that can stand a lot of improvement.

Address Box 46-787 care Paper Trade Journal. N-21

PLANT MANAGER—thorough experience in converting paper and boards; wants change to position offering better opportunity. Excellent production and labor relations background. Address Box 46-694 care Paper Trade Journal. N-21

AVAILABLE. Experienced standard cost accountant. Specialist sulphate pulp mill. Presently employed but seeking improved living conditions. Full details of offer in first instance to Box 46-770 care Paper Trade Journal. N-14

PAPER CHEMIST—B.S. Degree in Pulp and Paper Chemistry at N. Y. S. College of Forestry August 1946. Seeking opportunity in research or production control of Paper, Paper board or paper products. Address Box 46-799 care Paper Trade Journal. N-21

POSITION WANTED — SALESMAN of fine papers, many years experience in metropolitan territory. At present employed. Good list of well rated accounts that need paper. Address Box 46-796 care Paper Trade Journal. N-21

EUROPEAN PAPER EXPERT—20 years experience, M. Sc. diploma Prague, seeks connection with paper mill. Efficient administrator to rebuild and maintain plant Now working as Chief Engineer in India. Address Box 46-794 care Paper Trade Journal. N-14

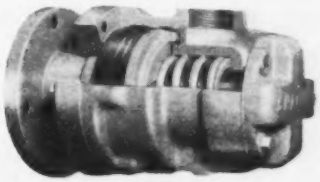
FOR SALE

FOR SALE—Six (6) Bag Machines capable of making a complete line of Flat and Square Grocery Bags, Notion and Millinery Bags, Candy and Glassine Bags. All machines in excellent condition. Will also consider profit-sharing arrangement with anyone who can supply paper. Address Box 46-793 care Paper Trade Journal. N-14

We've had some steamfit squawks—it's true, and upon investigation we've found this:

The steam piping leading to the steamfit itself is made up of numerous short lengths of pipe, threaded at both ends. In the course of threading and fitting together the line literally becomes loaded with shavings, which when the steam is turned on, are "blown" (sometimes a fist-full) into the steamfit. With this accumulation in its "craw," it literally grinds itself to an early end—and a complaint for us.

So *please* blow out the lines thoroughly before making the final connection—and reap the long life built into every No. 72 Steamfit.



*Or the other fellow's, either.

SHARTLE BROTHERS

MIDDLETOWN, OHIO

Dilts

DILTS MACHINE WORKS, FULTON, NEW YORK

Divisions of The Black-Clawson Co., Hamilton, Ohio

Associate: ALEXANDER FLECK LIMITED, OTTAWA, CANADA

FOR SALE

FOR SALE

22—dryers 48 x 128" with frames, gears & bearings.
6—60 x 132" dryers and bearings.
5—60 x 100" dryers and bearings, gears, and frames.
4—48 x 141" crepe dryers & anti-friction bearings.
1—22 x 94" Millspaugh suction couch.
1—12 x 14 Brownell twin variable speed engine.
2—10 x 12 Brownell variable speed engines.

SHARTLE BROS. MACHINE CO.
Middletown, Ohio
N-21

FOR SALE—Laboratory Hot Melt Coating and Laminating Machine. Address Box 46-766 care Paper Trade Journal. N-21

FOR SALE

FOR SALE

Can build to order 64" Board Paster, up to 4 plys with available stations.
60" Clark Aiken Sheeter
96" Guillotine Board Cutter
56" & 43" Miehle Printers
66" x 46" Sheridan 4 Post Die Cutter
36" Standard Rotary Printer
Also Slitters; Rewinders; Paper Cutters; Coaters; Printers; Die Cutters; Window Cellophane Gluers & Wrappers; Scorers; Creasers; Stitchers; Stayers; Enders; Slotters; Wrappers & Gluers. Write for Bulletins listing over 70 paper box and converting machines now available.

SOUTH WABASH ENGINEERING CO.
2929 S. Wabash Ave., Chicago, Illinois
D-19

FOR SALE—Bag Machines—self-opening type—in good condition—can be seen in operation. Address Box 46-791 care Paper Trade Journal. N-21

FOR SALE—Bag Machines—flat and square types—in good condition—can be seen in operation. Address Box 46-792 care Paper Trade Journal. N-21

FOR SALE

PAPER MILL EQUIPMENT FOR SALE

110" Hamblet & 80" Finley Sheeters.
68" Rice, Barton, Fales Slitter-Rewinder.
34" Inman shear cut Slitter.
Kidder Rotary Press, 4 colors one side, two on reverse, 34" cut.
54" Brown & Carver hand clamp Power Cutter.
14 x 22 John Thomson.
36" Burton heavy duty Rotary Perforator.
American heavy duty Cross-Cut Saw.
Baling Presses—NEW—Both hand & power.

THOMAS W. HALL COMPANY, Inc.
120 West 42nd St., New York (18)
TF

FOR SALE—2 Emerson Sheeters, largest sheet size 20 x 24. Address Box 46-789 care Paper Trade Journal. N-21

FOR SALE—38" Oswego Automatic Clamp Cutter, fully rebuilt and guaranteed. Address Box 46-795 care Paper Trade Journal. N-14

FOR SALE

BEATERS
1—2000 lb. Holyoke-Iron Tub Beater.
8—1200 lb. E. D. Jones (no tubs).
1—1000 lb. Dayton Beater (no tub).
1—400 lb. Gavit—iron tub beater.
1—Breaker Beater—Dilts Bandless Roll 62" diameter x 54" face—70 tons daily capacity. Equipped with Shartle Bros. Ragger.

BLOWERS
2—Buffalo Forge Company—Size 7—Duplex Conoidal steel plate Blowers. Ball bearing.

CALENDER STACKS
1—5 roll 84" face—Farrel.
1—6 roll—72" face.
1—7-roll 36" Holyoke Machine (supercalender.
1—2 roll 24" laboratory calender stack.

CENTRAP
1—Shartle Brothers Centrap.

COATING MACHINE
1—26" six roll coating machine

CREPING MACHINE
1—86" Waldron Creping Machine, practically new.

CYLINDER MOULDS
1—30" diameter x 74" face.
2—30" diameter x 54" face.
1—30" diameter x 75" face.
1—36" diameter x 84" face.
1—36" diameter x 80" face.
2—36" diameter x 72" face.
4—30" diameter x 72" face.

DOCTORS
14—Dillon Doctors—complete with accessories—98" face.

DRIVES
1—40 h.p. Bagley & Sewall, enclosed drives. (New 1942).
2—30 h.p. Downingtown, enclosed drive, ratio 6 to 1.
1—Cleveland Worm Drive, Ratio 10 to 1, New.
4—Smith & Winchester mortise gear Drives.
1—Moore & White mortise gear drive.
1—D. O. James 75 H.P. Speed Reducer with couplings and motor base. Ratio 2.16 to 1. 900 RPM.
1—#7½ Reeves.

DRYERS
16—36" diameter x 115" face.
1—28" diameter x 76" face.
1—48" diameter x 94" face.
1—24" diameter x 84" face. (Baby).
2—36" diameter x 64" face, with frames gears and bearings.
2—25" x 120" (Baby Dryers).
1—48" x 100".
1—36" diameter x 38" face.
5—48 x 72.
2—36 x 74.
2—36 x 76. (Bronze).
1—24 x 74 (Stainless steel).
3—24 x 72 (Copper face, textile type).
1—24 x 70 (Baby dryer).

ERKENSATORS
2—I. W. E. Erkensators—bronze construction—complete with motors, starters and distributing box.

FLAT SCREEN
1—4 plate Flat Screen.

HYDRAULIC PRESSES
1—Lake Erie Engineering Co., 78 ton, platen 12" x 12".
1—Watson Stillman, 60 ton, platen 14" x 14", with triplex pump and motor.

JORDANS
1—#2 Emerson, with 125 h.p. motor.
2—Noble & Wood, Pony Monarch, Belt Driven.
1—No. 9 Emerson Jordan—for direct connection to a motor.
1—Noble and Wood, Monarch, new fillings.

LIGHTER BAR LIFT
3 sets Hydraulic Lighter Bar Lifts, with pumps.

MOTOR
1—25 h.p. motor, including starting equipment.

PULLEYS
Various cone and assorted pulleys.

PULP EQUIPMENT
1—32" three pocket Glens Falls Grinder (for 27" wood).

PULP SCREEN
1—IMPCO centrifugal pulp screen design No. 3.

PULPER
1—Jones Pulper.

PULVERIZER
1—Erie coal pulverizer.

PUMPS
1—Buffalo Pump—5500 g.p.m. direct connected to 100 H.P. Motor (50' head).
Various sizes of Centrifugal and Plunger Pumps. Write us regarding your particular requirements.
4—Vertical Schutte & Koerting Acid Pumps (with motors).

RAG CUTTER
1—#20 Taylor, Stiles & Co.

REELS
1—72" Downingtown Expansion Reel.
1—2 Bowl Reel — 112" face — bowls 20" diameter.
1—2 Bowl Reel—110" face.

ROLLS
500—Brass tube—steel tube—rubber covered iron rolls—various sizes.

ROTARY SCREENS
3—Moore & White Rotary Screens (alternating diaphragm type).

ROTARY SCREEN
1—#2 Bird Screens (copper vat).

SAVEALL
1—Saveall 36" diameter x 96" face cylinder mold. (With iron end vat.)

SCREEN PLATES
36 plates—43 x 11 3/32"—.050 cut—bevel edges
24 plates—Recently recut .808.
12 plates—Recently recut .035.
Also other sizes and cuts in stock

SHREDDERS
1—No. 25 CRSE Mitts & Merrill Hog.
1—Gilman Shredder.
1—Waterville Shredder.

SHEETERS
1—128" Moore & White Sheeter with layboy
1—48" Langston heavy duty chopper (this is a combination machine, combining a slitter, scorer, sheeter and chopper.)

SLITTERS AND WINDERS
1—72" Langston.
1—36" Beck Razor Blade type Slitter & Winder.
1—60" Moore & White Slitter and Winder set for 5/4" slits.
1—60" Moore & White Slitter and Winder set for 7/16" slits.
2—32" Cameron, Type 6.

STOCK PUMPS
1—7¾ x 12 duplex Moore & White.
1—12 x 20 Triplex Shartle.
1—10 x 12 open impeller. (All lead).
5—Goulds Centrifugal Stock Pumps, 4 x 6, ball bearing.
Numerous other Centrifugal Stock Pumps Advise as to your requirements.

SUCTION BOX
1—Nash 100" face Suction Box.

SUCTION FELT ROLL
1—Downingtown Suction Felt Rolls—10" diameter x 107" face).

TOILET AND TOWEL MACHINES
1—65" Towel Machine.
1—85" Toilet Machine.

V-BELT DRIVES
1—{23" diameter x 14" face, 10 grooves
{15" diameter x 14" face, 10 grooves

VACUUM PUMP
2—#4 Nash Hytor.
1—No. 7 Sturtevant Vacuum Pump.

VALVES
8—8" Quick Opening Stock Valves.
3—6" Quick Opening Stock Valves.

WET MACHINE
1—74" Moore & White.

We are always in the market to purchase your surplus or idle machinery. What have you to offer?
Wanted Cylinder and Fourdrinier Machines (complete mills).

Paddy Ross, Pres. **J. J. ROSS COMPANY** Ben Kurs, Treas.
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PAPER MAKING EQUIPMENT

NEW, USED, REBUILT
PAPER AND PULP MACHINERY

JACK ROSS, President

BANBURY MIXER—1 Farrel Birmingham 16", complete. Photograph on request.

AIR HOISTS
3—Two-Ton Ingersoll Rand
3—Five-Ton Ingersoll Rand

BEATERS
2—1000 lb. Horne Iron Tub.
2—1200 lb. E. D. Jones Iron Tub Beaters with washers.
2—1200 lb. E. D. Jones Beater—no tubs.
3—Valley Iron 750 lbs. Iron Tub Beaters, with Silent Link Belt Drive.
1—1200 lb. Noble and Wood—no tub. Spare new fillings for roll.
2—Valley Iron—Roll 67" diameter x 60" face—wood tub.

BIRD SCREEN PLATE
17 Plate—60 cut. New condition.

BLEACHERS
3—Fletcher high density bleachers—used 3 months.

BLOWERS
1—American ball bearing blower, size 17" x 23" for motor drive.

CALENDER DOCTORS
1 set of 16 Warren Doctors 104" face with frames.
68 Warren Doctors—various sizes.

CALENDER ROLLS
38 rolls various sizes

CALENDER STACKS
1—2 roll Holyoke 36" face.
1—9 roll 64" calender stack.

CONVERTING EQUIPMENT
1—Sanitary Napkin Machine. With motors and starters.
1—Bliss Double Head Stitcher.

COUCH ROLLS
2—18" diameter x 92" face—brass covered.
3—20" diameter x 92" face—brass covered.

CYLINDER MOLDS
2—Impco—84" face—40" diameter with stainless steel face wire
2—110" face x 36" dia.
4—84" face x 36" diameter.

DANDY ROLLS
1—122" face 18" dia.
1—138" face 12" dia.
1—129" face 9½" dia.

DRYER DOCTORS
40—Warren Doctors. Various sizes.

DRYERS
38—48" Dia. x 46" Face, Chromium Plated.
2—24" Dia. x 40" Face.
13—120" face x 48" diameter—New
1—100" face x 48" diameter—with ball bearing.

ELECTRIC HOIST
1—Sprague Electric 3 ton hoist—5 h.p. 3 phase—60 cycle—110 volts.

FLAT SCREENS
3—Harmon 16 plate.
1—Sandy Hill 2 plate flat screen.

FOURDRINIER SHAKES
1—Beloit Fourdrinier Shakes.
1—Sandy Hill Bertram Shake. Late type.

FOURDRINIER WET END
1—120" Beloit Fourdrinier Wet End
1—74" Pusey & Jones Wet End.

GRANITE ROLLS
1—112" face 20" diameter.

HAMMERMILLS
1—American Hammermill—37" anti friction bearing equipped.
1—Williams 18" Hammermill Ball Bearing.

HOG
1—Mitts & Merrill Hog. Number 5232.

JORDANS
1—E. D. Jones Imperial Jordans—belt driven.
1—Smith & Winchester 30 ton capacity—belt driven.
1—E. D. Jones Imperial Jordan with 200 h.p., —360 r.p.m. motor.

KNOTTERS
1—Wells Knotter.
2—Trimbey Knotters.

LINE SHAFT
1—Complete line shaft with pulleys and pillar block.

PLATERS
2—Holyoke 2 Roll 18" dia. 38" face

PULLEYS
60—Cone Split and Solid Cast Iron Pulleys Various Sizes.

PULP EQUIPMENT
1—126" face Kamyr Press.
1—84" Sumner Disc Barker with motor
1—84" Carthage 4 knife chipper, 3 sets spare knives with one Waterville Rechipper.

PULPERS
1—Voith Pulper 20 tons cap.
1—Bird Pulper.

PUMPS
3—Ingersoll Rand 250 g.p.m. 1740 rpm 90' head —4" suction—3" discharge. Direct connected to 10 hp. General Electric 220-440 volt—3 phase—60 cycle motor.
2—Ingersoll Rand 500 g.p.m. 1745 r.p.m.—80' head—4" suction—3" discharge. Connected to 15 h.p. General Electric 220-440 volt—3 phase—60 cycle motor.
4—Worthington Pumps 16,000 g.p.m.—35' head. Requires 75 h.p. at 550 r.p.m.
1—DeLaval 6" x 6".
15—Warren Vertical Pumps. 6" suction. 3" discharge. 135 g.p.m. 90' head. Direct Connected 6 h.p. General Electric motor, 1750 r.p.m. 440 volts, 3 ph.-60 cycle, ball bearing.
2—Worthington 3", 2 stage, 200 g.p.m. 224' head. Bronze Ball Bearings.
1—Worthington 400 g.p.m. 35' head 1750 r.p.m. Ball bearing.
1—Gould Figure 3000—size 8-4" suction—3" discharge.
1—American Marsh 290 g.p.m.—50' head—3" suction 2½" discharge. Connected to 7½ h.p. G.E. motor—230 volts.
1—Pennsylvania 1000 g.p.m. 80' head—8" suction—6" discharge—Connected to 30 h.p. G.E.—220 v. 3 phase—60 cycle motor.
8—De Laval Verticals—540 g.p.m. 1740 r.p.m. —30' head 3" x 5". Direct connected to 7½ h.p. Allis Chalmers Motor. 440 volts—3 phase—60 cycle.
1—6" Pusey & Jones Open Impeller Centrifugal Stock Pump—belt driven.
1—7" Pusey & Jones Open Impeller Centrifugal Stock Pump—belt driven.
1—Worthington 750 g.p.m. 120# head.
3—3" Lance Size Pumps—belt driven.
1—Le Courtney 4 stage, 1000 g.p.m., 1750 r.p.m., 750' head. With base and couplings for motor.
1—Le Courtney 6 stage 1200 g.p.m., 1760 r.p.m., 1180' head, with base and couplings for motor.
10—Water Pumping Units. 500 g.p.m., 270' head, 2400 r.p.m. Driven by a Chrysler Crown Gasoline Engine and mounted on a two wheel trailer.

REFINERS
1—Weiner Refiner 24" with extended base for direct connection to motor.

ROLLS
40—Table, Dress, Felt, Wire, Breast and Calender Rolls. Various Sizes.

ROTARY COOKER
1—Rotary Cooker—8' dia. x 21' long—complete with drive.

ROTARY SCREENS
2—#2 Bird with copper vats.
2—#1 Bird with steel vats, lead lined.
1—Moore & White.

RUBBER PRESS ROLLS
1—109" Face—17½" Diameter.
1—129" Face—19" Diameter.
1—107" Face—18" Diameter.
1—106" Face—18¼" Diameter.

SAVEALLS
1—A. D. Wood cylinder 48" dia. 60" face

SCREW PRESS
1—Valley Iron Screw Press. Used 2 years

SHEETERS
1—96" Hamblet Duplex.
1—88" Beloit Single Knife heavy duty.
1—136" Hamblet Duplex.

SHREDDERS
2—24" Sprout Waldron heavy duty shredders—anti friction bearing equipped.
1—Taylor Stiles Portable Pulp Shredder—on wheels.
1—Ryther and Pringle Shredder.

SLITTERS AND WINDERS
1—41" Waldron Slitter and rewinder. Roll embossing attachment.

STEAM LOCOMOTIVES & WOODLAND EQUIPMENT
1—32 ton 36" gauge Shay-Lima locomotive. Air pressure 150 lbs. P.S.I. with a large lot of new spare parts.
1—40 ton 36" gauge Improved Climax Locomotive. Boiler pressure 150 lbs. P.S.I. with a large lot of new spare parts.
30—36" gauge wood cars. 40,000 lbs. log or pulpwood capacity. Used 4 months.
1—Sheffield motor car, manufactured by Fairbanks Morse—36" gauge—New.

THICKENERS
1—Thickener Cylinder Mold 36" diameter x 96" face—ball bearing equipped.
Iron and vat—16" diameter couch.

SUPERCALENDER STACKS
1—9 roll Norwood 83" face. Bottom roll 24" diameter. Top roll 20" diameter.

STOCK PUMPS
2—8 x 18" Beloit Duplex.

TURBINES
1—Westinghouse 125 h.p. 125 steam pressure—15 back pressure. Complete. Used 1 year.

VACUUM PUMPS
2—14" x 20" Connersville.

YANKEE DRYERS
2—Beloit 9' dia. x 175" face—75# working pressure.
1—Beloit 5' dia. x 194" face—75# working pressure.

THE ABOVE IS A PARTIAL LIST OF EQUIPMENT OFFERED FOR SALE.

NO CONNECTION WITH ANY OTHER FIRM OF SIMILAR NAME.

FOR SALE

"CALL MOORHEAD IN PITTSBURGH REBUILT ELECTRIC EQUIPMENT"

REBUILT ELECTRICAL MACHINERY

Slip ring & Squirrel cage motors

HP	Make	Speed	Voltage	Type
40	G.E.	870	220/440	MTC
40(2)	G.E.	600	220/440	M T
50	G.E.	900	2200	I-M
100	West.	1750	2200/220/440	CI
150	West.	600	440/220	Syn.
200	West.	600	220/440	Syn.
200(2)	G.E.	240	2200	MT-412
300	West.	1750	2200/220/440	CW
350	G.E.	900	440	I-M
450	G.E.	257	2200	I-M
500	G.E.	450	2200	MT412

AC and DC Generating Equipment

1—300 KW G.E. R. Converter 250 v. DC.
200 KW West. 250 v. DC—2200 v. AC
50 KW G.E. 125 v.—75 HP 3 ph.
15 KW G.E. 250 v. DC—220/440 v.
1000 amp. Westgh. SK Arc Weld Gen.
75 KW 250/275 v. West. Type S 1000.
45 KW West. SK 125 v. 700 RPM
50 KW Westgh. Turbo 125 Volt D C.
1250 KVA West. 2 ped brg. 440/3/60
1200 RPM with dc exciter (New)
2-40 KW West. SK 250 v. cpd. wd. Gen. 900 RPM
1-70 KW 250 v. G.E. cp. wd. 1000 RPM
1-75 KW West. S 250 v. 1000 RPM.

Miscellaneous

1300 cu. ft. 100#. Worth. Belted, Comp.
220 cu. ft. Ing. Rd.-Gasoline Comp.
270 cu. ft. Chic. Pneu.-Gasoline Comp.
164 cu. ft. Chic. Pneu. Steam Comp.
500/700 HP Morse Chain Drive 4.28 to 1.
250 HP Ottumwa Unit 12.5 to 1
150 HP G.E. unit ratio 3 to 1
150 HP Nuttall 1.6 to 1
2—50 HP Ohio Forge ratio 45 to 1.
2—1 Ton Gib AC Cranes 35' swing.
5-Ton Shep. AC, 35' 9¼" span, 3 motors.

MOORHEAD-REITMEYER CO., INC.
30th & Brereton Sts. Pittsburgh, Pa.

Specializing in rebuilt Electrical Machinery for over a Quarter of a Century.

FOR IMMEDIATE DISPOSAL

400 HP Harris Corliss Steam Engine in good condition.

Complete Mechanical Power Transmission Equipment, including Philadelphia Geared Reducer, 125 HP, Ratio 1⅔ to 1, in good condition and over 100 pulleys of various sizes.

2 Complete Paper Machine Drives in operative condition.

2 Moore & White Paper Machine Drives in good condition.

This equipment can be inspected at any time.

MAKE US AN OFFER

GOLDEN FLEECE CO., INC.
Bancroft, Mass.

FOR SALE—Knowlton Spiral Winder complete with motors, tube cutters, roll slitter and other paper tube machinery—immediate shipment. Theo. Adams, 111 W. Washington St., Chicago, Ill. N-14

FOR SALE

FRANK H. DAVIS CO.,
ESTABLISHED 1889
USED AND REBUILT PAPER MACHINERY.

FOR SALE

BEATERS
2—Holyoke 66 x 60 iron tub
1—Holyoke 48 x 44 iron tub
1—Horne patent beater 60 x 60, bronze bars
1—2000 lb. Horne iron tub new 1941, bandless roll 60 x 48

CALENDERS
1—52" Textile seven roll supercalender
1—43" Holyoke seven roll supercalender
5—Paper rolls 76 x 15¾ Jour. 7¾ x 13¾"

CUTTERS
1—110" Hamblet duplex sheet cutter
1—84" Clark with Moore & White layboy
1—Taylor Stiles rag cutter
2—No. 2 Daniels rag cutters
1—63" Smith & Winchester undercut ream cutter
1—115" Single knife Moore & White cutter and slitter, also layboy

DECKERS
1—30 x 95" Black & Clawson
1—30 x 74" Impco
3—Apmew filters, mould 50 x 100"

DRIVES
6—Beloit 14 & 63 teeth
7" face C O mortise gears

DRYERS
1—8 ft. x 86"
2—8 ft. x 175"
1—6 ft. x 102"
1—5 ft. x 194" new 1939
1—6 ft. x 106"

DUSTERS
1—four cyl. R.R.
1—Devil

FANS
Two—Buffalo double turbo 6½ concoidal forced draft fans

ENGINES
1—Hamilton Corliss 10 x 30 direct connected to 30 KW Westinghouse engine generator including exciter, balance wheel 10 ft. x 11"
1—10 x 10 American Ball twin variable speed, 100 HP excellent condition

FOURDRINIER PARTS
1—119" x 54' 10" wire
Rice Barton anti friction equipped 18" breast and 18" suction couch, now running
1—120" x 75 ft. wire Horne new 1927, anti friction equipped 25" suction couch and Bellit oscillating suction boxes. Also two sets Horne heavy presses with 20" dia. rolls. Now running 450 FPM
1—133" x 61' 2" wire Pusey & Jones, plain couches, running at 500 FPM
1—100" x 31 ft. special with two Reeves drives
1—72" Sandy Hill
1—120" Voith Inlet
2—Sets 10" slices

FILTERS OR DE-INKERS
1—Apmew three cylinder, mould 50 x 100", worm gear drive

MIXERS AND COOKERS
1—25 gallon cooker, No. 75

PULPERS
1—No. 1 Lannoye
2—Jones with Falk reducers and motors 440 volts 3 ph sixty cycle

PUMPS
1—10 x 10 Bellit triplex
2—10 x 12 Deane rebuilt
1—Ingersoll Rand Pump, type Imperial 10

REELS
1—Two bowl Beloit, drums steel 16 x 123, slip belt drive

SCREENS
2—No. 2A Bird
2—No. 2 Bird
1—Moore & White No. 3
1—Jones Leith Walk
2—12 plate Packer
4—New 10 plate Witham vats

SHREDDERS
2—Mitts Merrill No. 15 CF direct cont. to 125 HP 440 volt motor
1—Carthage
Mitts Merrill type 14A F E S No. C 19026

SORTING TABLE
1—Moore & White sorting table

SLITTERS AND WINDERS
1—150" Moore & White four drum
1—120" Kidder two drum
1—114" Moore & White winds 60" roll
1—84" Bagley & Sewall
1—50" Cannard
1—28" Kidder two drum
1—30" Langston

WASHERS
2—2000 lb. Union Machine steel tub
Apmew three cylinder

WET MACHINES
1—84" Noble & Wood, automatic cut off Bottom roll R.C. 24 x 88"

Builders of
ASPHALT COATING, COMBINING MACHINE, GUMMING AND CREPING MACHINE, ROLL GRINDER
FRANK H. DAVIS COMPANY
175 Richdale Ave., Cambridge, Mass. TF

FOR SALE

FOR SALE
BREAKER BEATER
1—Dilts Bandless Roll 62" diameter x 54" face—70 tons daily capacity. Equipped with Shartle Bros. Ragger.
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Tel. Bigelow 3-3720 N-14

Baker Perkins Mixer
Size #17—Type 6—Class B-S
Silent Chain Drive—200 gallon capacity—Less motor. Good condition.
Your inspection is invited.
All inquiries must be addressed: Attention Purchasing Department.
THE FIBRE CONDUIT COMPANY
Orangeburg, N. Y.
N-14

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1—Noble & Wood Mammoth Jr. Jordan ¼" Filling. Now operating.
1—Brass covered finishing press roll—17¾" diameter x 89½" face, complete with bearings and Noble & Wood friction drive.
1—4000# Capacity motor driven freight elevator with automatic stop control—can be inspected in operation at our plant.
1—8" Lawrence Centrifugal Water pump.
2—8" Barnes Centrifugal Sewage Pumps.
5—100" Screen plates for No. 2-A Bird Screen. Slots. .022—never used after being recut once.
1—Rubber covered press roll 12" diameter by 68" face—Journals 5" diameter by 7¼" long.
1—Rubber covered press roll 12" diameter by 64½" face—Journals 5" diameter by 7¼" long.
1—20" face cast iron tapered pulley—2 15/16" Bore, Taper 31"-29½".
2—20" face cast iron tapered pulley—3 7/16" Bore, Taper 31"-30".
1—24" face cast iron tapered pulley—3 7/16" Bore, Tapered 31⅝"-29⅝".
2—Steel split pulleys 60" diameter by 31" face —5 15/16" bore.
1—Cast iron split pulley—60" diameter by 21" face by 3½" bore.
1—Cast iron split pulley—40½" diameter by 21" face by 3½" bore.
1—Cast iron split pulley—84" diameter by 36" face by 5 15/16" bore.
1—Cast iron split pulley—72" diameter by 16" face by 16" face by 8⅝" bore.
2 —Steel split pulleys—60" diameter by 41" face by 5 15/16" bore.
1—Paper pulley—24" diameter by 21" face by 4½" bore.
1—Tapered cast iron split pulley. Taper 30" to 28½" by 20" face by 3 15/16" bore.
1—30" x 90" Cylinder mould—7" diameter shaft inside cylinder.
1 9½" diameter x 85" Face Rubber-covered squeeze or wringer roll-Journals 1 15/16" diameter.
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12—6½" dia. x 92" face steel drier felt rolls with 1 7/16" x 6½" Journals.
2—4" Gould centrifugal stock pumps with 2 vane open impeller. Capacity 600 G.P.M. at 40" head—1175 R.P.M. with 10 H.P. Operated less than two years.
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A visit to the mill would prove profitable as we have many items for sale too numerous to mention. See our superintendent, Mr. O. P. Fussell at our plant in Walloomsac, N. Y.

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1—Complete Paper Machine 48" wide, trim 45". 17 Dryers, Calender Stack, Cameron Winder, Pumps, Beaters, Jordans, etc. About 12 tons daily capacity. Immediate delivery. Price very reasonable.

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Fulton, N. Y. N-14

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TARENTUM, PENNSYLVANIA

1—Majestic Jordan #A-235, complete with new filling, 3/16" tackle, No. 6 Fast Jordan Coupling, and following drive:

1 Westinghouse Induction Motor type CS 375 HP 2300 volts 3 phase 60 cycles 97 amp. 380 RPM Ser. #1463196 complete with one control panel, including one Westinghouse 300 amp. Oil Circuit Panel.
1 set Disconnect Switches.

1—Westinghouse DC Motor 75 HP 230 volts 265 amp. 575 RPM Frame 183 Ser. #4778560. Complete with starting control, circuit breaker and motor.

1—Elliott Water Pump, capacity 500 gallons per minute, serial #37075. Direct connected to one G.E. Motor 25 HP D.C. Type CD 85-230 91.3 amps 1750 RPM Ser. #1538385. Complete with one starting control and switch.

1—Westinghouse Generator 70 KW 230 volts DC 280 amp. 375 RPM Ser. #348451 with one Field Rheostat, one two-pole circuit breaker 600 amp., one Westinghouse 500 amp. ammeter and shunt. This Generator driven by Buckeye Steam Engine, 100 lbs. steam pressure engine #5156.

1—2000 KW A.C. Turbine Generator complete with all accessories.

1—Allis-Chalmers Induction motor 250 HP 870 RPM 2200 volts, 3 ph 60 cy 59 amp. Serial #2K13566.1.

1—G.E. Induction Motor type KT 326-8-25-1200 Form B 3 ph 60 cy 220 volts 25 HP 61 amp. 1200 RPM Ser. #1053934 complete with one G.E. OIL Switch type F Form K20 80 amp 600 v Ser. #368400.

1—G.E. Starting Compensator CR1034 220 volts 3 ph 60 cy type NR 1622.

1—G.E. Induction Motor (slipring) Frame 15A 150 HP Form M 720 RPM 2200 v. 3 ph 60 cy 36 amp Ser. #1180132.

1—G.E. Induction Motor (slipring) Frame 15A 150 HP Form M 720 RPM 2200 v. 3 ph 60 cy 36 amp.

1—Westinghouse 30 HP D.C. Motor 220 volts 117 amp. 975 RPM Ser. #233501.

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1—104" Sheet Cutter complete with stands for 10 rolls, and layboy.

1—G.E. Motor DC Type RC30 Form A 15 HP 850 RPM 230 volts 53.5 amp. Ser. #957750, complete with variable speed control for armature and field.

1—G.E. Motor DC 7.5 HP 230 volts 30.2 amp 850 RPM Type RC-29A Form A29 Ser. #1145541.

1—G.E. Motor DC 10 HP 230 volts 375.1 amp 850 RPM Type RC 29 Form A29 Ser. #1148880.

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1—G.E. Motor DC 25 HP 129 amp. 230 volts 700 RPM DLC 202 Form A Compound Ser. #434542, complete with starting control.

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1—Wright Electric Hoist 1,000 lb. capacity 230 volts DC 1200 RPM Ser. #27668.

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1—Horizontal Rotary Digester 8' dia., 20' long with gearing reduction.

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1—Slat conveyor steel construction 4' wide, 3' high, 42' long, driven by one Jones Spur Gear Reducer, ratio 27 to 1, Ser. #10135. Driven by one Sprag Electric DC Motor type LC 10 HP 37.2 amps 230 V 100 RPM Ser. #DL 2005213, complete with sheaves and V Belt drive, one Westinghouse Automatic Starter.

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1—Thorpe Hydraulic Press complete with 4 steam platen plates 40" x 40", and one Equalizer Pump.

1—Five cylinder Holyoke Duster.

1—Two-color Kidder Rotary Press, with various plates and printing rolls.

3—Beaters, 1000 lb., cast iron tub, complete with roll.

2—Beaters, high speed, 2000 lb., cast iron tub, complete with roll.

1—Banded type Emerson Beater Roll, 54" face, 56" diameter, complete with stands.

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Platform Scales.
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Two-wheeled hand trucks.
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TF

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1—12-plate Dunbar screen

1—112" Seybold knife grinder

1—Lobdell roll grinder

1—12x6 Warren open impeller centrifugal pump, 1500 GPM, 75' head

Shartle Bros. Machine Co.
Middletown, Ohio

N-14

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New brass covered felt or wire rolls 6⅝" dia., 84 to 120" face. These are made from government surplus and are new in all respects.

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25—42" x 126" Downingtown dryers with 26 triple deck frames, gears, and bearings, no liners.

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3—Impco Pulp Screens of design No. 3.

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WANTED

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N-21

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N-21

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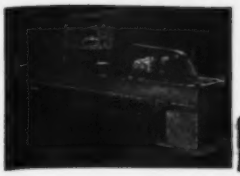

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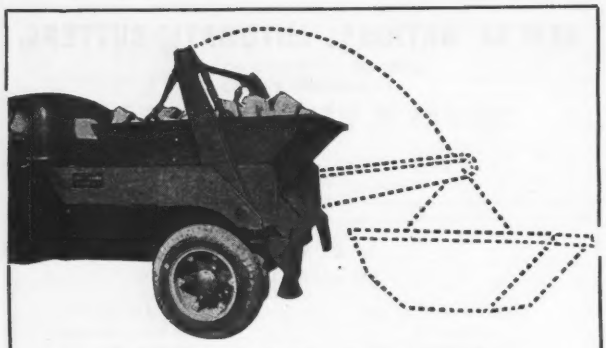

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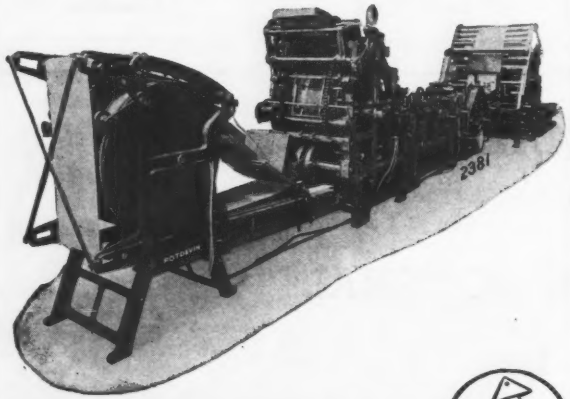

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Downingtown Mfg. Co.
Hermann Mfg. Co.
E. D. Jones & Sons Co.
Noble & Wood Machine Co.
J. J. Ross Company
Ross Paper Machy. Co.
Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.

BED PLATES
Bahr Brothers Mfg. Co.
Dilts Machine Works, Inc.
Downingtown Mfg. Co.
Farrel-Birmingham Co., Inc.
E. D. Jones & Sons Co.
Noble & Wood Machine Co.
Shartle Brothers Machine Co.
Valley Iron Works Co.

BELTING
Alexander Brothers
Allis-Chalmers Mfg. Co.
The Cincinnati Rubber Mfg. Co.
Raybestos-Manhattan Inc. Manhattan Rubber Division
J. E. Rhoads & Sons
United States Rubber Co.
T. B. Wood's Sons Company
Worthington Pump & Machy. Corp.

BLEACHING BOILERS, ROTARY
The Biggs Boiler Wks. Co.

BLEACHING APPARATUS
The Biggs Boiler Works Co.
Improved Paper Machy. Corp.
E. D. Jones & Sons Co.
Perkins & Sons, Inc., B. F.
Moore & White Co.
Niagara Alkali Co.
Noble & Wood Machine Co.
Pennsylvania Salt Co.
The Sandy Hill Iron & Brass Wks
Shartle Brothers Machine Co.

BLOW PIPES & PITS
Carthage Machine Co.
Montague Machine Co.
Moore & White Co.
Murray Mfg. Co., D. J.
Walworth Company

BOILERS
Babcock & Wilcox Co.
Biggs Boiler Works
Foster Wheeler Corp.

BOILERS (Electric)
Steamaire Company

BOTTOMS
Harrington & King Perforating Co.
Kalamazoo Tank & Silo Co.
Valley Iron Works Co.

CALENDERS
Black-Clawson Company
Downingtown Mfg. Co.
Farrel-Birmingham Co., Inc.
Lobdell Car Wheel Co.
Moore & White Co.
Perkins & Son, Inc., B. F.
J. J. Ross Company
Ross Paper Machy. Co.
The Sandy Hill Iron & Brass Wks
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works
Waldron Corp., John

CASEIN
Casein Company of America

CASTINGS
Appleton Machine Co.
Black-Clawson Company
Carthage Machine Co.
Dilts Machine Works
Downingtown Mfg. Co.
Farrel-Birmingham Co.
Grinnell Company
Hamblet Machine Co.
Hardinge Co., Inc.
E. D. Jones & Sons Co.
Lobdell Car Wheel Co.
Magnus Metal Corp.
Montague Machine Co.
Noble & Wood Machine Co.
The Sandy Hill Iron & Brass Wks
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Union Machine Company
Union Screen Plate Co.
Valley Iron Works Co.

WHERE TO BUY

Walworth Company

CENTRIFUGAL MACHINERY
Bird Machine Co.
De Laval Steam Turbine Co.
Nichols Engrg. & Research Corp.
Ross, J. O., Eng. Co.
Shartle Brothers Machine Co.
Williams Apparatus Co.

CHEMICALS
American Anode, Incorporated
Amer. Cyanamid & Chem. Corp.
Amer. Resinous Chemicals Corp.
Ansul Chemical Co.
Calco Chemical Co.
The Cowles Detergent Co.
Diamond Alkali Co.
Dispersion Process, Inc.
Dow Chemical Company
E. I. du Pont de Nemours & Co., Inc.
Falls Chemical Products Co.
General Dyestuff Corp.
Geigy Co., Inc.
Gottesman & Co.
Hooker Electrochemical Company
Kelco Company
Mallinckrodt Chemical Wks.
The Mathieson Alkali Works, Inc.
Monsanto Chemical Company
National Oil Products Co.
Naugatuck Chemical Div. of U. S. Rubber Co.
Niagara Alkali Company
Paper Makers Chemical Department, Hercules Powder Co.
Pennsylvania Salt Mfg. Co.
Philadelphia Quartz Co.
Pioneer Salt Company
Pittsburgh Plate Glass Co., Columbia Chemical Division
Solvay Sales Corp.
United States Rubber Co.
Witco Chemical Co.
Wyandotte Chemicals Corp.

CLEANING MATERIALS
Adell Chemical Company
Amer. Cyanamid & Chem. Corp.
Bird Machine Co.
The Cowles Detergent Co.
E. I. du Pont de Nemours & Co., Inc
Paper Makers Chemical Department, Hercules Powder Co.
Magnus Chemical Co.
Monsanto Chemical Co
Nichols Engrg. & Research Corp.
Oakite Products, Inc.
Pennsylvania Salt Mfg. Co.
Philadelphia Quartz Co.
Pittsburgh Plate Glass Co., Columbia Chemical Division
Solvay Sales Corp.
Wyandotte Chemicals Corp., J. B Ford Division

CLUTCHES
Appleton Machine Co.
Black-Clawson Company
Hudson Sharp Machine Company
Farrel-Birmingham Co.
Fawick Airflex Co., Inc.
Hardinge Co., Inc.
Rodney Hunt Machine Co.
Moore & White Co.
D. J. Murray Mfg. Co.
The Sandy Hill Iron & Brass Wks
Stearns Magnetic Mfg. Co.
T. B. Wood's Sons Company

COATING MACHINERY
Hudson Sharp Machine Company
Mayer Machine Co.
Moore & White Co.
Potdevin Machine Co.
Rotogravure Engrg. Co.
Shartle Brothers Machine Co.
South Wabash Engrg. Co.
Waldron Corporation, John
Weber, Herman G.

COCKS, LUBRICATED PLUGS
American Car & Foundry Co.

COMPRESSORS
Allis-Chalmers Mfg. Co.
De Laval Steam Turbine Co.
Ingersoll-Rand Co.
Nash Engineering Co.
Worthington Pump & Machy Corp

CONDENSERS
Foster Wheeler Corp.

CONSULTING ENGINEERS
Frederic C. Clark
Ferguson, Hardy S.
Hardy, George F.
Alvin H. Johnson & Co., Inc.
The Kohler System Company
Main, Inc., Chas. T.
The McPherson Company
Roderick O'Donaghue
The Rust Engrg. Co.
J. E. Sirrine & Co.
South Wabash Engrg. Co.
Stone & Webster Engrg. Corp.

CONTROLLERS
Black-Clawson Co.
Cochrane Corp.

CONTROLS
The Bristol Company
Cochrane Corp.
Stickle Steam Specialties Co.

CONVEYORS
Black-Clawson Company
Murray, D. J., Mfg. Co.
Ross Engineering Corp., J. O.

COOLING SYSTEMS
Foster Wheeler Corp.
Steamaire Company

CORES
Elixman Paper Co.
Rodney Hunt Machine Co.
Montague Machine Co.
Smith & Winchester Mfg. Co.
Sonoco Products Co.
Walker-Goulard-Plehn Co.

COUPLINGS
Black-Clawson Company
De Laval Steam Turbine Co.
Farrel-Birmingham Co., Inc.
Hardinge Co., Inc.
E. D. Jones & Sons Co.
Lovejoy Flexible Coupling Co.
Moore & White Co.
Noble & Wood Machine Co.
The Sandy Hill Iron & Brass Wks
Shartle Brothers Machine Co.
Valley Iron Works
Waldron Corp., John
Westinghouse Electric Corporation
T. B. Wood's Sons Company

CRANES
Northwest Engrg. Co.
Reading Chain & Block Company

CRUSHERS
Fibre Making Processes, Inc.

CUTTERS
Dilts Machine Works
Thomas W. Hall Co.
Noble & Wood Machine Co.
Perkins & Son, Inc., B. F.
The Smith & Winchester Mfg. Co
South Wabash Engrg. Co.
Taylor Stiles & Co.

DAMPENERS
Perkins & Son, Inc., B. F
Steamaire Company
Valley Iron Works Co.

DE-INKING
Adell Chemical Company
Dilts Machine Works
Hardinge Co., Inc.
Kinsley Chemical Co.
Shartle Bros. Mach. Co.

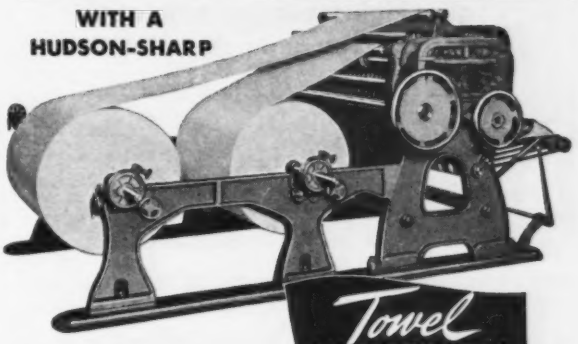
DIGESTERS
Biggs Boiler Works Co.
Foster Wheeler Corp.
Pusey & Jones Corp.

DOCTORS
Bird Machine Company
Black-Clawson Company
Downingtown Mfg. Co.
Lobdell Co.
Lodding Engineering Corp.
Montague Machine Co.
The Sandy Hill Iron & Brass Wks
Shartle Brothers Machine Co.

DOCTOR BLADES
Black-Clawson Company
Lodding Engrg. Corp.
Montague Machine Co.
Raybestos-Manhattan Inc. Manhattan Rubber Division
Rotogravure Engrg. Co.
The Sandy Hill Iron & Brass Wks
Shartle Brothers
United States Rubber Co.
Westinghouse Electric Corporation

DRIERS
Black-Clawson Company
Murray Mfg. Co., D. J.

COINCIDE *Peak* PRODUCTION WITH A HUDSON-SHARP *Towel* INTERFOLDER



BUILDERS of folders and interfolders for the paper towel industry since the product was originated, Hudson-Sharp machines have been improved and redesigned to meet the increased production speeds required for post-war demands. Write for complete information today.

HUDSON-SHARP
MACHINE CO • GREEN BAY • WIS

Fig. 45 — Biggs 14 ft. dia. welded rotary digester with worm-and-segment drive.

BIGGS ROTARY DIGESTERS

SINCE 1887 Biggs globe and cylinder rotary as well as stationary digesters have been universally used in the paper industry. These units are furnished in all sizes; are made from carbon or alloy steels for various working pressures with drives, linings and fittings to suit individual processes. Biggs "rotary boilers" are most versatile and economical in cooking, bleaching and otherwise processing a wide range of materials for standard and special operations. Units installed by Biggs in 1890 are still in daily operation with a minimum of maintenance. Biggs maintains a competent erecting organization.

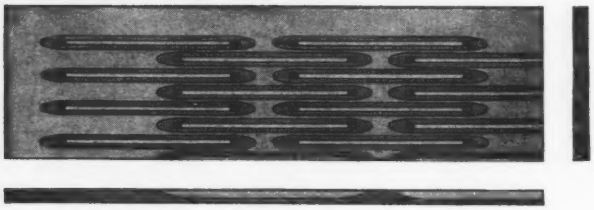
Biggs' modern plant facilities permit the fabrication of pressure vessels, welded tanks, pipe lines, and other types of heavy plate work.

Write for Bulletin 45.

THE *Biggs* BOILER WORKS CO.
1012 BANK STREET • AKRON 5, OHIO, U.S.A.

HENDRICK MILLED SLOT SCREENS

give high screening efficiency in paper and pulp mills



These screens are made in all commercially rolled metals, with fine slots cut accurately to size. The heavy relief on the underside of the screen plate assures efficient screening. A wide range of slot widths is offered to meet the particular requirements of any paper or pulp mill. Write for full information.

Perforated Metals
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Mitco Open Steel Flooring,
"Shur-Site" Treads and
Armorgrids.

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Clinton, Iowa
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WHERE TO BUY

DRIVES
Allis-Chalmers Mfg. Co.
Appleton Machine Co.
Bird Machine Co.
Black-Clawson Company
Davis, Frank H., Co.
De Laval Steam Turbine Co
Dilts Machine Works
Downingtown Mfg. Co.
Farrel-Birmingham Co.
General Electric Company
Rodney Hunt Machine Co.
Montague Machine Co.
Moore & White Co.
Murray, D. J., Mfg. Co.
Noble & Wood Machine Co.
Pusey & Jones Corp.
J. J. Ross Company
Ross Paper Machy. Co.
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
T. B. Wood's Sons Co.
Valley Iron Works Co.
Westinghouse Electric Corporation

DRUMS
Fibre Making Processes, Inc.

DRYER DRAINAGE
Stickle Steam Specialties Co.

DUSTERS
Appleton Machine Co.
Downingtown Mfg. Co.
Fibre Making Processes, Inc.
E. D. Jones & Son Co.
Moore & White Co.
Noble & Wood Machine Co.
Norwood Engrg. Co.
D. J. Murray Mfg. Co.

DYESTUFFS
Calco Chemical Co.
Ciba Company
E. I. du Pont de Nemours & Co., Inc.
Geigy Co., The
General Dyestuff Corp.
National Aniline Division, Allied Chemical & Dye Corp.
Paper Makers Chemical Department, Hercules Powder Co.
C. K. Williams & Co.
Witco Chemical Co.

EMBOSSING ROLLS
Northern Engraving & Mch. Co.
Roehlen Engraving Works

EVAPORATORS
Black-Clawson Company
Foster Wheeler Corp.
Goslin-Birmingham Mfg. Co., Inc.
Murray, D. J., Mfg. Co.
Swenson Evaporator Co., Div. of Whiting Corp.

FANS
General Electric Co.
B. F. Perkins & Son, Inc.
Ross Engineering Co., J. O.

FEEDERS
Fibre Making Processes, Inc.
Hardinge Co., Inc.
Merrick Scale Mfg. Co.
Leeds & Northrup
Wallace & Tiernan

FELTS
Appleton Woolen Mills
Asten-Hill Mfg. Co.
Bloomfield Woolen Co.
Bulkley, Dunton Pulp Co., Inc.
Draper Bros. Corp.
Huyck & Son, F. C.
Lockport Felt Co.
Mt. Vernon-Woodbury Mills, Inc.
Morey Paper Mill Supply Co.
Orr Felt & Blanket Co.
Shuler & Benninghofen
Waterbury Felt Co.
Waterbury, H., & Sons Co.

FELT CONDITIONERS
Steamaire Company

FELT GUIDES
Moore & White Co.
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
Waldron Corp., John

FILLERS
Aluminum Flake Co.
American Colloid Co.
Amer. Cyanamid & Chem. Corp.
Amer. Resinous Chemicals Corp.
Johns-Manville Sales Corp.
W. H. Loomis Talc Corp.
Vanderbilt Co., R. T.
Witco Chemical Co.

FILTERS
Cochrane Corp.
Hardinge Co., Inc.
Moore & White Co.
J. O. Ross Engrg. Corp.
Witco Chemical Co.
Worthington Pump & Machy. Corp.

FLOORING, GRATING & TREADS
Hendrick Mfg. Co.
Klemp Co., W. F.
Norton Co.
Raybestos-Manhattan Inc.
Manhattan Rubber Division
United States Rubber Co.

FORMING MACHINES
Downingtown Mfg. Co.
Noble & Wood Machine Co.
Oliver United Filters
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
South Wabash Engrg. Co.

FRICTION MATERIALS
Johns-Manville Sales Corp.

FREENESS TESTERS
Testing Machines, Inc.
Williams Apparatus Co.

GEARS
Black-Clawson Company
De Laval Steam Turbine Co
Downingtown Mfg. Co.
Farrel-Birmingham Co.
E. D. Jones & Sons Co.
Moore & White Co.
D. J. Murray Mfg. Co.
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.
Waldron Corp., John

GRINDERS
Carthage Machine Co.
Farrel-Birmingham Co.
Lobdell Car Wheel Co.
Montague Machine Co.
Norton Company
Samuel C. Rogers and Company
The Sandy Hill Iron & Brass Wks.

GRINDING WHEELS
The Manhattan Rubber Mfg. Div. of Raybestos-Manhattan, Inc.
Norton Company
United States Rubber Co.

HEAT EXCHANGERS
Foster Wheeler Corp.
Stickle Steam Specialties Co.

HEAT RECOVERY SYSTEMS
Foster Wheeler Corp.
Stickle Steam Specialties Co.

HEATING, VENTILATING AND AIR CONDITIONING
The Appleton Machine Co.
Armstrong Machine Works
Cochrane Corp.
E. D. Jones & Sons Co.
General Electric Co.
Grinnell Company
Leeds & Northrup
D. J. Murray Mfg. Co.
Noble & Wood Machine Co.
Ross Engineering Corp., J. O.
Shartle Brothers Machine Co.
Stickle Steam Specialties Co.
Valley Iron Works Co.
Worthington Pump & Machy. Corp.

HOISTS
Appleton Machine Co.
Dilts Machine Works
Rodney Hunt Machine Co.
Ingersoll-Rand Co.
E. D. Jones & Sons Co.
Reading Chain & Block Corp.

HOSE (Air, Water, Suction, etc.)
The Cincinnati Rubber Mfg. Co.
Raybestos-Manhattan Inc.
Manhattan Rubber Division
United States Rubber Co.

HUMIDITY CONTROL
Spray Engrg. Company
Steamaire Company

HYDRAPULPERS
Ross Paper Machy. Co.

INSTRUMENTS, TESTING AND MEASURING
Bauer Brothers Co.
N. P. Bowaher
The Bristol Company
Cochrane Corp.
The Foxboro Company
General Electric Company
W. & L. B. Gurley
Leeds & Northrup Company
National Technical Laboratories
B. F. Perkins & Son
Taber Instrument Corp.
Taylor Instrument Cos.
Testing Machines, Inc.
Wallace & Tiernan Instrument Co.
Williams Apparatus Co.

WHERE TO BUY

INSULATION
Johns-Manville Sales Corp.

JOINTS
Perfecting Service Company

JORDAN FILLINGS
Appleton Machine Co.
Bahr Brothers Mfg. Co.
E. D. Jones & Sons Co.
Noble & Wood Machine Co.
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.

KNIVES
Black-Clawson Company
Dilts Machine Works, Inc.
Hamblet Machine Co.
E. D. Jones & Sons Co.
Valley Iron Works Co.

KNOTTERS
Fibre Making Processes, Inc.

LABORATORY EQUIPMENT
Appleton Machine Co.
Bauer Brothers Co.
The Biggs Boiler Works Co.
W. H. & L. D. Betz
Dilts Machine Works
E. D. Jones & Sons Co.
Leeds & Northrup Company
National Technical Laboratories
Noble & Wood Machine Co.
Taber Instrument Co.
Taylor Instrument Companies
Testing Machines, Inc.
Valley Iron Works
Williams Apparatus Co.

LAY BOYS
Hamblet Machine Co.
Moore & White Co.
Shartle Brothers

LINTER COTTON
The Railway Supply & Mfg. Co.

LUBRICANTS
Gulf Oil Corporation
Gulf Refining Co.
Sinclair Refining Co.
Socony-Vacuum Oil Co., Inc.
Sun Oil Company
The Texas Company
Tide Water Associated Oil Co.

LUBRICATORS
Hills-McCanna Co.

MATERIAL HANDLING
Automatic Transportation Co.
Brooks Equipt. & Mfg. Co.
Northwest Engrg. Co.
Reading Chain & Block Company

MICROMETERS & CALIPERS
Farrel-Birmingham Co.
Montague Machine Co.
Lobdell Car Wheel Co.
Testing Machines, Inc.
Walker-Goulard-Plehn Co.

MOISTENING EQUIPMENT
The Spray Engineering Co.
Steamaire Company

MOISTURE CONTENT CONTROL
Spray Engrg. Company
Steamaire Company
Stickle Steam Specialties Co.
Williams Apparatus Co.

MOTORS AND GENERATORS
Allis-Chalmers Mfg. Co.
Continental Electric Co.
De Laval Steam Turbine Co.
General Electric Co.
Ingersoll-Rand Co.
Reliance Electric & Engrg. Co.
Westinghouse Electric Corporation

NOZZLES
Spray Engrg. Company
Steamaire Company

PACKING BOXES
Johnson Corporation
Shartle Brothers Machine Co.

PACKING
Johns-Manville Sales Corp.
The Manhattan Rubber Mfg. Div. of Raybestos-Manhattan, Inc.
United States Rubber Co.

PAPER MACHINES
Bagley & Sewall Co.
Black-Clawson Company
Downingtown Mfg. Co.
Thomas W. Hall Co.
Moore & White Co.
Pusey & Jones
J. J. Ross Company
Ross Paper Machy. Co.
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.

PAPER MACHINE SLICES
Black-Clawson Company
E. D. Jones & Sons Co.
Montague Machine Co.
The Sandy Hill Iron & Brass Wks.
Valley Iron Works Co.

PAPER MILL BUILDERS
Merritt-Chapman & Scott Corp.
The Rust Engrg. Co.

PAPER TUBE MACHINERY
Theo. Adams
Dietz Machine Works
Thomas W. Hall Co.
Hudson Sharp Machine Company
Langston Co., Samuel M.
South Wabash Engrg. Co.

PASTING MACHINES
Black-Clawson Company
Davis, Frank H., Co.
Murray, D. J., Mfg. Co.
Moore & White Co.
Potdevin Machine Co.
Shartle Brothers Machine Co.
South Wabash Engrg. Co.
Waldron Corp., John

PENSTOCKS, WELDED STEEL
The Biggs Boiler Works Co.

PERFORATED METAL
Allis-Chalmers Mfg. Co.
Harrington & King Perforating Co.
Hendrick Mfg. Co.

PIPE
Black-Clawson Company
Crane Company
Deublin Company
Grinnell Company
Johns-Manville Sales Corp.
Shartle Brothers Machine Co.
Stowe-Woodward, Inc.
Taylor Forge & Pipe Works
Walworth Company

PLATERS
Perkins & Son, Inc., B. F.

PLATES
Black-Clawson Company
Hendrick Mfg. Co.
J. O. Ross Engrg. Corp.
Shartle Brothers Machine Co.
Timken Roller Bearing Co.

PLATE WORK (Steel & Alloy)
The Biggs Boiler Works Co.

PLUGS
Black-Clawson Company
E. D. Jones & Sons Co.
The Noble & Wood Machine Co.
Shartle Brothers Machine Co.

PRESSURE VESSELS, STEEL AND ALLOY
The Biggs Boiler Works Co.
Foster Wheeler Corp.

PRESSES
Black-Clawson Company
Dietz Machine Works
Farrel-Birmingham Co.
Fibre Making Processes, Inc.
Thomas W. Hall Co.
Hudson-Sharp Machine Co.
Paper Converting Machine Co., Inc.
Potdevin Machine Co.
Rotogravure Engineering Co.
Shartle Brothers
South Wabash Engrg. Co.
Valley Iron Works Co.
Waldron Corp., John
Weber, Herman G.
Williams Apparatus Co.

PULPERS
Bauer Brothers Co.

PULPS
Andersen Co., J.
Bulkley, Dunton Pulp Co., Inc.
Gottesman & Co., Inc.
Elof Hansson, Inc.
Lyddon & Co. (America) Inc.
Parsons & Whittemore, Inc.
Perkins-Goodwin Co.
Price & Pierce, Ltd.
Pulp and Paper Trading Co.

PULPSTONES
Norton Company

PUMPS
Allis-Chalmers Mfg. Co.
Black-Clawson Company
Buffalo Pumps, Inc.
Dorr Company
Downingtown Mfg. Co.
De Laval Steam Turbine Co.
Hardinge Co., Inc.
Hills-McCanna Co.
Ingersoll-Rand Co.
Johnson Corp.
Moore & White Co.
Morris Machine Works
Nash Engineering Co.
Noble & Wood Machine Co.
Paper Converting Mch. Co.
J. J. Ross Company
Ross Paper Machy. Co.
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Steamaire Company
Warren Steam Pump Company
Worthington Pump & Mchy. Corp.

SINCE 1828 The Smith & Winchester Mfg. Co. has been serving the paper and paper bag industry with custom machinery to meet the ever increasing demands for larger volume production of paper and paper products at lowest possible manufacturing costs.

The SMITH & WINCHESTER
Manufacturing Company
SOUTH WINDHAM, CONNECTICUT

Felt Loaded with Carbon

KEEP 'EM SOFT AND ABSORBENT!

Any paper mill felt is only as good as its conditioning. When you clean your felts, if you use the proper

MAGNUS FELT CONDITIONER

you'll not only get rid of *all* the load, but you'll get a soft, fully absorbent felt with the nap as good as new. There's a type to suit your needs, whether you have felts loaded with lime or carbon; clean them on the machine or off. Ask us for recommendations.

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Paper Mill Cleaners

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BLEACHED AND UNBLEACHED KRAFT PULP

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Luke, Maryland — Williamsburg, Pennsylvania
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Since 1901

Dietz Machine Works

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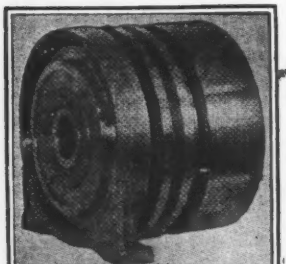

Stearns MAGNETIC
CLUTCHES - BRAKES
Clutch-Brake Combinations

Offer smooth, dependable acceleration, positive stop in a great variety of power transmission applications. Write for our Bulletin 112. Accurate control from near or remote points.

In addition to problems in your plant we may be able to improve the product you sell. Get our advice and recommendations. No obligations.

Fewer parts, simple design and adjustments, minimum and long wear friction linings.

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RAG CUTTERS
B. F. Perkins & Son, Inc.
Taylor-Stiles & Co.
RECOVERY SYSTEMS
Bulkley, Dunton Pulp Co., Inc.
Rodney Hunt Machine Co.
Moore & White Co.
D. J. Murray Mfg. Co.
Pusey & Jones
Ross Engineering Corp., J. O
Valley Iron Works Co.
REELS
Black-Clawson Company
Downingtown Mfg. Co.
De Laval Steam Turbine Co.
Hudson Sharp Machine Company
The Kohler System Company
Montague Machine Co.
Moore & White Co.
Paper Converting Mch. Co.
Rodney Hunt Machine Co.
Rotogravure Engrg. Co.
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
The Smith & Winchester Mfg. Co.
REFINERS
Appleton Machine Co.
Bahr Brothers Mfg. Co.
Bauer Brothers Co.
Dilts Machine Works
The Hermann Manufacturing Co.
E. D. Jones & Sons Co.
Murray, D. J., Mfg. Co.
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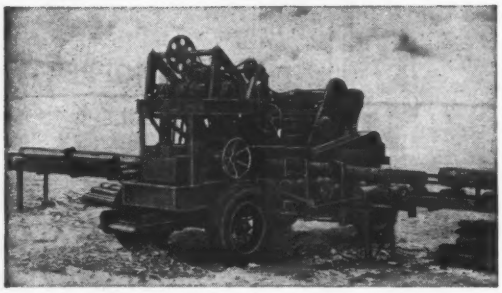

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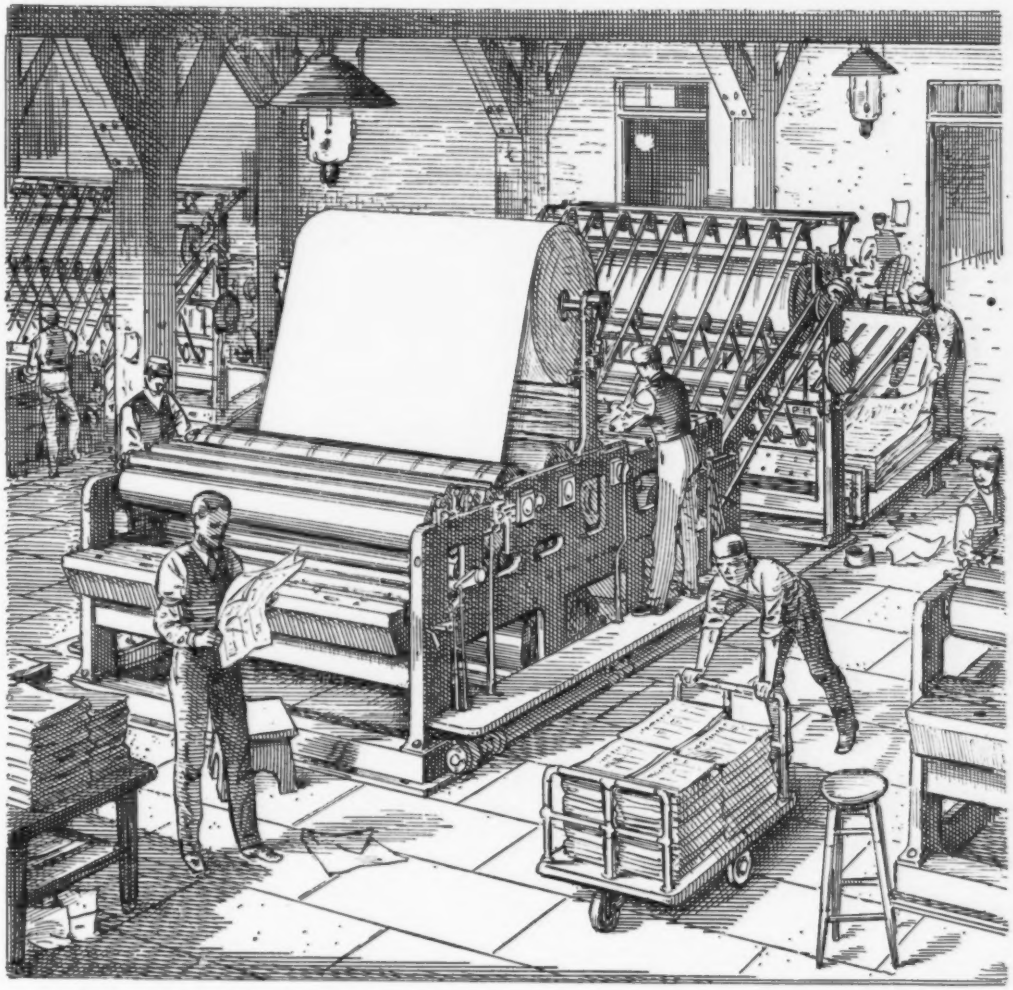

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